


THE
GROWING
WORLD



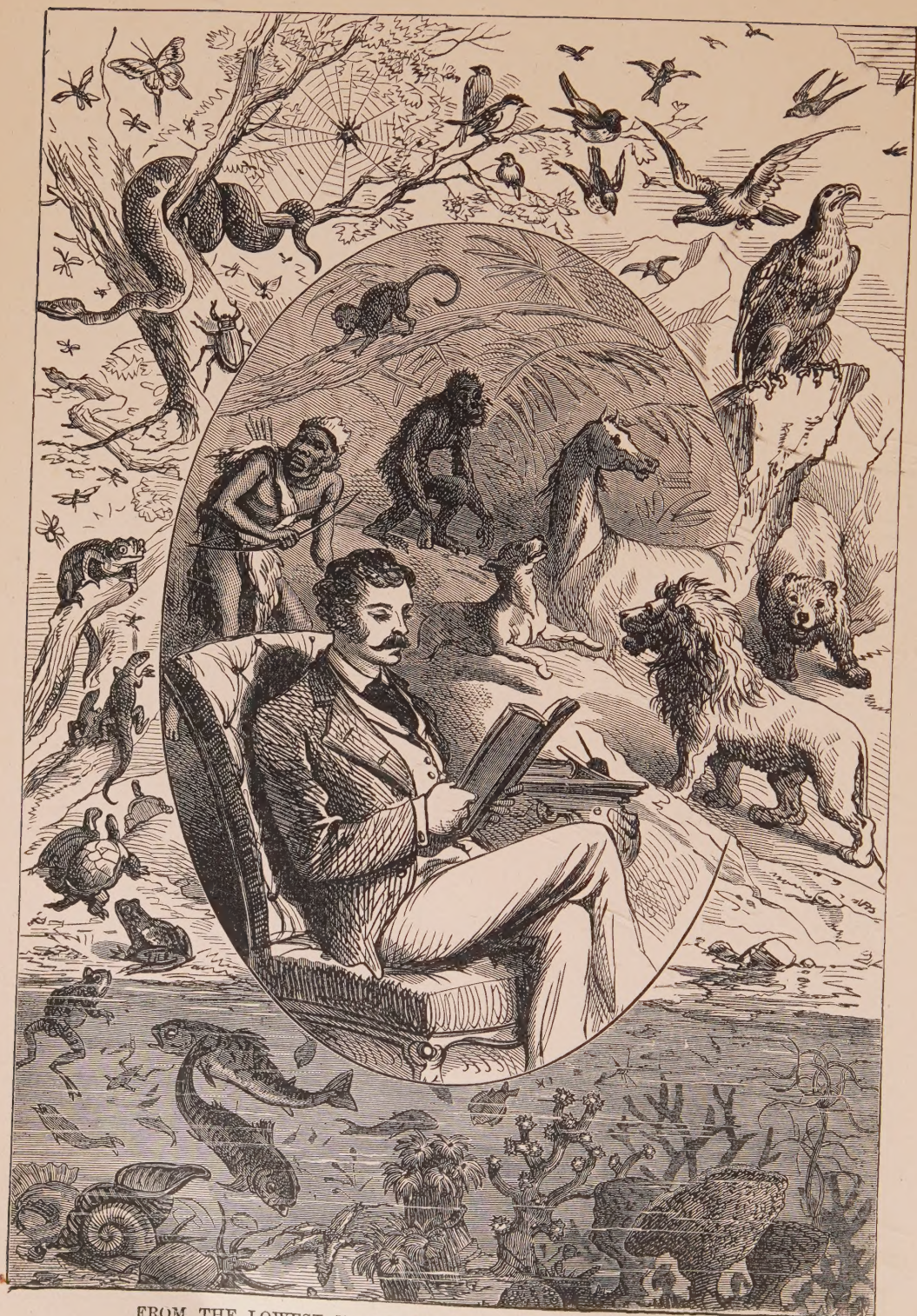
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FROM THE LOWEST TO THE HIGHEST TYPE OF ANIMAL LIFE.

THE
GROWING WORLD;

OR,

PROGRESS OF CIVILIZATION,

AND THE WONDERS OF

NATURE, SCIENCE, LITERATURE AND ART,

INTERSPERSED WITH A

USEFUL AND ENTERTAINING COLLECTION OF MISCELLANY

BY THE BEST AUTHORS OF OUR DAY.

ILLUSTRATED.

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PHILADELPHIA, CHICAGO and KANSAS CITY:

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1884.

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PREFACE.

"EDUCATION is the cheap defence of nations," was the wise sentiment once uttered by that great statesman, Edmund Burke. We have in this sentiment one of the noblest truths discovered by modern political sages, and one, too, that demands large consideration in the canons of jurisprudence. By education, we mean the cultivation of the *moral* faculties, in a degree commensurate with the improvement of the intellect, and, in addition thereto, a corresponding physical culture. The perfection of these three combined form the perfect man—the image of God; and where either is wanting, or exists in an inferior degree, the symmetry of the whole is marred. The mere cultivation of the intellect—the arousing of the mental faculties to vigorous action, while the moral sentiments are allowed to remain dormant or become corrupt, too frequently proves a curse to the individual and to society, rather than a blessing. Every ray of light that illumines the understanding should also shed its influence over the habitation of the passions; and the head and heart should be equally warmed by the glorious luminary, KNOWLEDGE. This mighty power, which is bearing the human race rapidly onward toward perfection, has many agents at work; and every true philanthropist feels solicitous concerning the character of these various ministers to human improvement. The TONGUE, the PEN, and the PRESS should all be subservient to the dictates of pure morality and sound judgment; and whosoever labors for the good of society—whosoever longs for a happy change in the social character of his race, should strive earnestly for the purification of this triad of forces.

Ignorance is constantly putting forth false literature, and teaching false doctrines, through which the young mind is liable to be tempted and led astray. It is the instigator of drunkenness, debauchery, and shame. It is the precursor of tyranny, crime, and war. Thousands of our young men are being led away, and they are forming habits truly deplorable. These are to be the men that the coming generation will have to contend with. The war between ignorance and knowledge will continue; but knowledge and education are in the ascendant; and wherever civilization extends, the banner of ignorance trails in the dust.

Our noble system of free schools is rapidly raising the United States to the foremost rank among the learned nations of the world. The enormous number of books and papers published and circulated among our people attest the fact that ours is a reading and thinking nation. The desire for knowledge is on the increase; and, step by step, scientific progress is moving forward. A hundred years ago the bare thought of a steam engine had scarcely found a place in the brain of man. Plows were made of wood, and hoes with handles inserted through eyes. Who had dreamed of the electric telegraph, the telephone, the electric light, the harvesting machine, the sewing-machine, and the ten thousand other great inventions that crowd the page of discoveries of the nineteenth century? No one. The age of genius, enterprise, and learning had not developed itself. Great minds have studied, thought, and reasoned all their lives to bring about the present state of human knowledge; and now they arrive at the con-

clusion that they are taking the first step upon the ladder of progress, and that they have barely learned the A B C of science.

Through the medium of the printing press the leading men of to-day have become acquainted with all the discoveries and inventions former generations have ever made. To these they have added their own theories, speculations, and discoveries, and thus have made the present age an age of progress. They have made deep researches, and have performed their parts well; but now the heads of many of our noblest minds are becoming silvered o'er with gray. They will soon pass away, and sleep the silent slumber beneath the sod, as their fathers have before. The rising generation will soon be called upon to take their places in the world, with greater advantages left for them than were ever left for any previous generation.

To the truly benevolent mind, the momentous questions present themselves:—What proportion of this mass of information is really useful? How much of knowledge thus offered to the intellect carries with it a salutary moral influence, and while it enlightens the understanding, improves the heart? How much of this vast amount of the daily productions of the press contains the seeds of genuine knowledge? We fear that a correct answer to these inquiries would spread a broad dark shadow over the picture of the march of intellect—that the winnower would find but a few measures of grain in the immense heap of chaff!

We have viewed with pain the development of the slow improvement, in a moral point of view, of society around us, while general intelligence is so rapidly increasing. Everybody reads—few study. Mind acting upon mind, through the medium of the “cheap literature”

of the day, is developing on every side a vast amount of hidden intellectual vigor, destined to exert a powerful influence over the future character of the race. But amid all these ministrations to the wants of growing intellect, there is too much apathy on the subject of corresponding *moral* culture. There is now a vast amount of *mental dissipation* visible around us; and the more exciting, the more *intoxicating*, the character of a publication, the greater is the number of purchasers—the greater the profits of the vender. Out of this traffic spring evils as deleterious, and as much to be deprecated by the wise and good, as the traffic in alcohol; and every true philanthropist should labor to arrest its progress, and counteract its degenerating influence. With this class of men—men who love their kind, and aim to elevate man, by a due improvement of his faculties, to his proper standard of excellence, we delight to labor, and press onward, shoulder to shoulder, in the diffusion of useful knowledge.

In the following pages, we have endeavored to garner up treasures drawn from every department of human knowledge. We have endeavored to make the pen and burin subservient to the best interests of society, by portraying those various truths respecting men and things which form such important features in the constitution of the social compact. From the mines of History, Biography, Natural History, Moral and Physical Sciences, Fine Arts, and General Literature, we have prepared the choicest gems, such as emit the purest moral lustre; and at a price commensurate with the means of the most humble in worldly goods, we offer this casket to the public, with the sincerest desire that it may prove a valuable acquisition to the moral and intellectual wealth of every possessor.

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THE GROWING WORLD.

BIOLOGY.

In Biology, the science of life, treating not only of the forms and functions of living beings, but embracing as it does everything, intimately or remotely, relating to the study of organized beings, we have an interesting, and, indeed, a fascinating subject. For life, as manifest in man, the highest of all organized beings, or in the *Amœba*, apparently a minute particle of bioplasm and the lowest and simplest of living things, has ever been the mystery of mysteries. In one we find life in its complexity and maturity, while in the other we see life in its simplicity, in its cradle; but neither the microscope nor the scalpel, nor the laboratory has ever been able to remove the mystic drapery surrounding life, but we are ever beckoned onward to another and different sphere of existence for its solution. And when even in a small degree we study by the help of the microscope the structure of beings, more elevated in the living hierarchy than this little jelly-like particle of living bioplasm, we instantly see that the fundamental mass has lost its homogeneity, that it has fractionized itself into many bioplasts, all invisible to the naked eye. Now, these small living centres or individual cells, form the fundamental basis not only for the manifestation of life, but also the foundation for every organ and tissue of the animal or vegetable organism. These cell bodies are called anatomical or histological elements, and may be one five-hundredth or less than the five-thousandth of an inch in diameter, yet every one has a living bioplast as a centre, and into every centre there flows a current of nutrient matter or pabulum, which, by a process that cannot be explained by chemistry or any physical science, is changed into living matter. At the outer edge of the cell formed material accumulates, and is in some cases tissue, in some secretion, and in some an osseous deposit. Now these cells with germinal centres of bioplasm are scattered so pervadingly through all organic structures that in no organism is there a space one five-hundredth of an inch square without a germinal point, or bioplast. The cells are more or less spherical, having a sort of individual life and independence, assimilating and dis-assimilating on their own account, and constituted of a substance, colorless and more or less viscid, and when complete contains a living bioplast as a nucleus, in which vitality is supposed to reside. It is now generally believed that the bioplast centers alone convert the nutrient matter into living matter and the living matter into the formed matter of the tissues. Schlienden was the first to show that the embryo of a flowering plant originated in a nucleated cell and that from such cells the vegetable tissues are developed. The original cells are formed in a plasma or blastema commonly found in pre-existing cells, the nuclei or bioplasts first appearing and then the cell-walls of formed material manifesting themselves. Schwann

afterwards applied this discovery to animal structures, believing that the extra cellular formation of cells, or their origin in a free pabulum or blastema, was most frequent in animals, and that the cell nucleus is formed by the semi-fluid substance in the cell. That the cell when once formed continues to grow by its own individual powers, but is at the same time directed by the influence of the entire organism in such a manner as the design of the whole requires. This is, then, the theory of vitality, the fundamental phenomenon of all animal and vegetable life. There are at least three forms of cell multiplication, by fission, by germination or budding, and by internal division or the endogenous process, in which new cells are formed within a parent cell by a separation of the mass into a number of distinct centers, each of which becomes a new and independent cell, as in the fecundated ovum. The fission process, or division by cleavage of a parent cell and its bioplasm into two or more parts, may be regarded as a modification of endogenous process, while budding or germination, consists in the projection of a little process or bud from the parent cell, which is separated by the contraction of its base, when it is thrown off and becomes an independent cell. Dr. Beale says: "Every living organism, plant, animal or man, begins its existence as a small particle of bioplasm or living cell. Every organic form, leaves, flowers, shells, and all varieties of animals; and every tissue, cellular, vascular, hair, bone, skin, muscle and nerve originate by sub-division and multiplication or metamorphosis of bioplasm into formed material. It is evident, therefore, that there are different kinds of bioplasm indistinguishable by physics and chemistry." And thus, when we come to discriminate between animal and vegetable bioplasts or cells, we find it exceedingly difficult, for neither form nor chemical compositions, nor motive power affords sufficient grounds for discrimination. Yet when we consider the functions of bioplasm in its varied forms we may conveniently group all living beings into three great divisions, namely, fungi, plants and animals. The bioplasm of plants finds its pabulum in merely inorganic compounds, while that of animals is prepared for it directly or indirectly by the vegetable. The function of fungi appears to be the decomposition of the formed matter of plants and animals by the means of fermentation or putrefaction, since the latter processes are dependent on the presence of fungi. Thus by bioplasm are the structures of plants and animals reared from inorganic materials, and by bioplasm are they broken down and restored to the inanimate world again. According to the Atomic Theory, the world is composed of an innumerable quantity of atoms, mobile, infinitely small and distant from each other. These atoms are in a perpetual state of movement, rushing toward each other, repelling each

other, for they have their sympathies and their antipathies. It is from the diversity of their affinities that result their exceedingly diversified mode of grouping and the variety of the external world. It is by their vibrations, their oscillations, that they reveal themselves to man by impressing his organs of sense. "They have as essential qualities, inalterability, eternity. When they gather together new bodies are formed; when they disaggregate, bodies previously existing dissolve and seem to vanish. They are unknown stones which have passed, pass, and are destined evermore to pass from one edifice to another. And thus all the phenomena, all the varied aspects, all the revolutions of the universe can be referred to simple atomic displacements." Reproduction in the higher organisms consist essentially of the production of two distinct elements, a germ-cell or ovum, and a sperm-cell or spermatozoid, by the contact of which the ovum is enabled to develop a new individual. Sometimes these elements are produced by different parts of the same organism, in which case the sexes are said to be united, and the individual is called hermaphrodite, androgynous or monoecious, while in other instances the sexes are distinct and the species are called dioecious. In regard to the origin of life upon the earth, the prevailing opinion to-day is that all life begins in a bioplast or cell; that every bioplast known to man has been derived from a preceding bioplast. Now the question occurs, Out of what, then, came the first bioplast? Huxley says that life is the cause of organization, and not organization the cause of life. But if life may exist before organization, may it not exist after organization? Upon this subject the world is divided into two great classes, the Theistic and the Materialistic. The first makes God direct and immanent in all natural laws, and every result of cosmic forces is attributed to Divine action. They contend that the earth having become changed from its original chaotic state by order of the Creator, that in obedience to the fiat of the Almighty the various forms of vegetable and animal life manifested themselves from the lowest organisms in the primal periods as the earth became fitted for their existence, to the more complex of succeeding periods. That in slow and solemn majesty, according to sacred history and geologic evidence, has period succeeded period, each in succession ushering in a higher and yet higher scene of existence—mollusks, crustacea, fish, reptile and bird, the mamiferous quadruped, and finally rational, accountable man—and that several dynasties of the great living procession were introduced not in their lower but higher forms—the magnates or kings first making their appearance, while degeneration of species followed. They say with Prof. Dana, as declared in the closing part of his great work on Geology, that the first chapter of Genesis is thoroughly harmonious with geologic evidence and is both true and divine. The second class contend that there is nothing in the universe but matter and its laws—that there is no spiritual substance, and that what is called *mind or soul* in a man is but a mode of force and motion in matter. They teach that the soul is in some sense secreted by the brain, and that when the brain dissolves the soul is no more. The Evolution Theory is that the earth was at one time an incandescent globe, but that in the course of time, after millions of ages, when the earth had cooled and become fitted for life, the first living organisms spontaneously organized themselves at the expense of mineral matter. They hold that all organic forms, from the lowest to the highest, have been developed progressively from living microscopical particles spontaneously organized. That the first beings were exceedingly simple, consisting of a single cell, composed of carbon, with an admixture of hydrogen, oxygen, nitrogen and sulphur, and that these cells by their very composition possessed perception and will, and when properly united and nursed, in time became man through progressive development. This theory makes man descend step by step from the wonderfully complex organism of the present age down through the inferior animals, the ape, the porpoise, the frog, the herring, the mollusk or the assidian, to a small microscopic particle which in the primal period spontaneously organized itself, where we find the original ovum which millions of years afterwards developed into man. In this way the biblical account of man's creation is demolished and the mystery of the universe explained by the evolution theory of life.

Prof. Tyndall says: "The matter of the animal body is that of inorganic nature. There is no substance in the animal tissues which is not primarily derived from the rocks, the air and the water. Are the forces of organic matter, then, different in kind from those of inorganic matter? The philosophy of the present day negatives the question. It is the compounding, in the organic world, of forces belonging equally to the inorganic, that constitute the mystery and miracle of vitality. Every portion of every animal body may be reduced to purely inorganic matter. A perfect reversal of this process of reduction would carry us from the inorganic to the organic; and such a reversal is at least conceivable. The blood is the oil of the lamp of life; the blood is consumed and the whole body, though more slowly than the blood, wastes also, so that after a certain number of years it is entirely renewed. How is the sense of personal identity maintained across this flight of molecules? To man as we know him, matter is absolutely necessary to consciousness; but the matter of any period may be all changed, while consciousness exhibits no solution of continuity. Like changing sentinels, the oxygen, hydrogen and carbon that depart, seem to whisper their secrets to their comrades that arrive, and thus, while the Non-Ego shifts, the Ego remains intact. Consistency of form in the grouping of the molecules and not consistency of the molecules themselves, is the correlative of this constancy of perception. Life—a wave which in no two consecutive moments of its existence is composed of the same particles. Supposing, then, the molecules of the human body, instead of replacing others, and thus renewing a pre-existing form, to be gathered first-hand from nature and put together in the same relative position as those which they occupy in the body. Supposing them to have the self-same forces and distribution of forces, the self-same motions and disposition of motions—would this organized concourse of molecules stand before us as a sentient-thinking human being? Or supposing a planet carved from the sun set spinning round its axis and revolving around the sun at a distance from him equal to that of our earth—would one of the consequences of its refrigeration be the development of organic forms? I lean to the affirmative. Structural forces are certainly in the mass, whether or not those forces reach the extent of forming a plant or an animal. In the amorphous drop of water lie latent all the marvels of crystalline force; and who will set limits to the possible play of molecules in a cooling planet? As regards knowledge, physical science is polar. It in one sense knows, or is destined to know everything; in another sense it knows nothing. Science understands much of the intermediate phase of things that we call nature. Who or what made the Sun and gave his rays their alleged power? Who or what made and bestowed upon the ultimate particles of matter their wondrous power of varied interaction? Science does not know; the mystery though pushed back remains unaltered." But physiology having confessed that it is unable to define Life, appeals to chemistry for a solution of the question. But the philosophic poet warns us—

"From higher judgment seat make no appeals to lower," and such appeal, from higher to lower, is the appeal of physiology to chemistry. No analysis of a nerve fibre will ever throw light on sensibility. The scalpel will not tell how the cerebral substance is affected in thought. Nor can physiology tell us how it is that a small microscopic cell which we find in the egg of an animal contains potentially a living creature, and which will reproduce not only the form, features, stature and specific attributes of the parent animals, but also many of its acquired habits, tendencies and tricks. Has chemistry in the whole extent of its domain, anything analogous to this? Can chemistry furnish us with even an approach to an explanation of it? Chemical analysis may conduct us to the threshold of life, but at the threshold all its guidance ceases. There a new order of complications intervene, a new series of laws has to be elicited, for we have reached an unknown territory, and everything beyond is an impenetrable mystery.

Owen thinks life in its simplest forms may, perhaps, be compared to the power a magnet exerts when it attracts certain particles to itself and rejects others. But is this all we have in life? You may change a magnet from state to state, as you change water to gases, and gases to water. You may braid and unbraid the theory of any inorganic whip-lash again and again, but once un-

braid any living strands, and there is no braiding them again, forever.

It is admitted now by biologists that in the small centre of bioplasm, which is the foundation, the corner-stone of life, a change occurs which is a sealed volume to the deepest physical science. Here at one moment we have the not-living matter and at the next moment the living; and who can explain the mysterious transmutation of the not living into living matter? In the language of the Rev. Joseph Cooke, to whom I am indebted in this connection: "Take the twittering swallows under the brown eaves, or your eagle on the cliff, or your lion in his lair; the egg in each case, is the source of life; and when quickening begins, there is nothing to be seen at the centre of the egg but this structureless, colorless, viscid bioplasm. Nevertheless, it divides and sub-divides; and weaves in the one case a lion, and in another a swallow, and in another case an eagle; and I affirm, in the name of all reason, that from the very first, the plan of the whole organism must be in view somewhere. You know that when a temple is built, the plan is in the corner-stone. You know that when the weaver strikes his shuttle for the first time in the finest produce of his art, the whole plan of the figures of the web is before him. We see here the bioplasts weaving their threads; we see them co-ordinating them as in the one case, to make your swallow, in another case to make your eagle, in another case to make your lion, and in another case to make your man, and why shall we not say, following the law, that every change must have an adequate cause, that somewhere and somehow there is here what all this mechanism needs—Forecast." But what about man's descent from the simplest of organisms through the ape? Virchow, perhaps the greatest living authority, says: "As a matter of fact there exists as yet a sharp line of demarcation between man and the ape. We cannot teach, we cannot pronounce it to be a conquest of science that man descends from the ape or from any other animal. Let us then in what we have now to say, keep provisionally to the Quaternary man whom we really find. When we study this fossil man of the Quaternary period, who must of course, have stood comparatively near our primitive ancestors in a series of descent, or rather of ascent, we always find a man just such as men are now. As recently as ten years ago, whenever a skull was found in a peatbog, or in pile dwellings, or in ancient caves, the people fancied they saw in it a wonderful token of a savage state still quite undeveloped. They smelt out the very scent of the ape. Only the trail has gradually been lost more and more. The old troglodytes, pile-villagers and bog-people have quite respectable society. They have heads so large that many living persons would be only too happy to possess them. On the whole, we must really acknowledge that there is a complete absence of any fossil type of a lower stage in the development of man. Nay, if we gather together the whole sum of the fossil men hitherto known, and put them parallel with those of the present time, we can decidedly pronounce that there are among living men a great number of individuals who show a relatively inferior type than there are among fossils known up to this time."

Prof. Dana says: "For the development of man, gifted with high reason and will, and thus made a power above Nature, there was required, as Wallace has urged, a special act of a being above Nature, whose supreme will is not only the source of natural law, but the working force of Nature herself. This I still hold."

Summarizing, then, the latest science, we find that spontaneous generation does not occur—that the beginning of all life, vegetable or animal, is a bioplast or cell—that this bioplast always arises from a previous bioplast—that bioplasts are capable of self-subdivision, and that each portion of a self-divided bioplast has the same powers as the parent bioplast—that the bioplasts convert inorganic not living matter into living matter, and living matter into formed material, as secretion, tissue, bone, muscle, artery and nerve, thus not only weaving cell membranes, but also weaving all the tissues of the organism in accordance with the forecast of the Great Architect in the beginning—and, finally, that the theory of man's descent from the ape, as admitted by the evolutionists themselves, is a deductive theory from circumstantial evidence alone, and not inductive—a result of speculation and not of observation, and entirely unsupported by facts.

POWER OF ELECTRICITY, AND THE ELECTRIC TELEGRAPH.

As we stand in the workshop viewing the ponderous masses of machinery kept in motion by some monster steam engine, or by the railway when the heavy train is rushing past with the speed of the wind, we naturally ask ourselves, what can be more powerful than this? Again, as we witness the effect of a cannon shot thrown from a mile away, we are almost ready to believe that gunpowder must be composed of the most powerful ingredients to be found in the field of Nature. These impressions, however, are but momentary; for when the angry storm cloud gathers, and sets the elements in commotion,—when the bright lightning flashes vividly in the heavens, and the thunderbolt descends to the earth, we behold a power more potent than these, and we realize the insignificance of the power of man.

A few weeks since, (November, 1875,) during the passage of a severe thunder storm, it was my lot to witness the mighty power of the disturbed elements. It was in the evening; and as the inky cloud moved up to the zenith, the dazzling flashes of lightning followed each other in rapid succession, while the roar of the heavy thunder was incessant, and like the artillery of war. All at once there came a blinding glare of lightning that seemed to set the whole world in a blaze. The crash of the thunder that followed was instantaneous and awful;—jarring the solid earth till the house seemed to rock, and the windows rattled in their casements. Two or three days afterwards, I beheld the work the thunderbolt had wrought. It had struck a chestnut tree, about forty rods distant from where I was at the time, and had literally torn it to shreds. Pieces of the roots had been torn out, and hurled to the distance of fifteen or twenty rods. Deep furrows were cut in the greensward, in different directions, to the distance of twenty or thirty feet; and a fence standing near, was broken and demolished. And it was all done by a spark of electricity. What, in comparison, is the power of steam, or the explosive force of gunpowder!

And now what is electricity? Here we have a question more easily asked than answered. It is, without doubt, the most potent power in the whole laboratory of Nature. In its undisturbed state it is invisible; and in our unthinking moments we are unaware of its presence. And yet it exists in everything. We find it in all animal and vegetable life;—in the air we breathe and the water we drink—in our very bodies—in all Nature. Deep down in the interior of the earth it is, doubtless, at work; silently bringing about chemical changes, performing an important part in fitting and preparing this earthly globe for another great universal convulsion. Electricity may be excited by Physical, Mechanical, or Chemical action; but why any of these means should rouse its latent powers into action remains a mystery.

There are two states of electricity, known as the *positive* and the *negative*. When a body contains an overplus of electricity, it is said to be *positive*; and when it contains a less amount than what is natural, it is said to be *negative*. When the sky is partially overcast with clouds, and currents of air are moving in different directions, changing the temperature of the atmosphere from warm to cold and from cold to warm, the electricity is excited, and changed also, from *positive* to *negative*, and from *negative* to *positive* again, in rapid succession. As an *over-charged* cloud approaches another that is *under-charged*, a struggle for equilibrium ensues; and the forked lightning darts from the *positive* to the *negative* cloud, with deafening detonations of thunder. Occasionally, it descends like a dazzling chain to the earth, when it is often attended with disastrous consequences.

A terrible case of lightning, attended with fatal results, occurred only about four miles from my residence, in the latter part of August, 1870. The family, consisting of Mr. James Rosengrant, his young wife, and a younger brother of the lady, had just retired. Never in my life do I remember seeing such a fearful display of atmospheric electricity, as on that dreadful night. The whole heavens seemed almost in one continual blaze; while the angry roar of the thunder, caused the solid earth to quake and tremble. Suddenly a bolt from the storm-cloud descended upon the doomed dwelling. It struck the chimney, and tearing off a part, descended through the plank partition at the foot of the bedroom. Here it apparently turned aside; and striking upon the feet of Mr. Rosengrant, followed his body to his head, when it descended through the pillow, rending the cloth and scattering the feathers, after which it tore its way through the side of the house to the ground outside. Of course every person in the house, was instantly rendered unconscious. Some time during the night, Mrs. Rosengrant called to her brother, who was sleeping in an adjoining apartment, and bade him come to her. He arose, and proceeding to her room, lit the lamp. She had been vomiting, and now appeared unconscious. He said James appeared very pale, and still, and as he touched his arm it was cold and stiff. He thought things did not look right, but what was the matter he could not tell; and in a semi-dream-like state, which made everything appear like some horrid nightmare, he blew out the light and mechanically went back to bed. All night long Mrs. Rosengrant lay upon the cold arm of her dead husband. In the morning she roused up, and

shaking him by the shoulders, exclaimed: "Why James it is time you were up long ago." Suddenly she stopped, and gazed upon the pallid face before her. An awful truth burst upon her mind. He was dead! With a wild shriek she leaped from the bed, hurried on her dress, and fled frantically down the road. At the distance of thirty or forty rods she fell unconscious to the ground; and for thirty-six hours she knew not her nearest friends. For many days her life was despaired of; she finally recovered, however, and is now living with her second husband. We often hear it said that lightning will leave no mark on flesh; this, however, is not always true. The arms, and bosom, and head of Mrs. Rosegrant, was frightfully burned; causing terrible sores, which required many weeks to heal. Thus the lightning had left its mark; and its course may be seen upon her body to this day, in the shape of ugly scars which she will carry with her to the grave. Hence, we infer that where persons are said to be struck by lightning, and no marks appear, they were only shocked by its near approach, and were not directly struck by the bolt itself. The above appears almost like a miraculous escape from death; and yet is nevertheless true; the lady in question being a cousin to the writer, and the facts of the case coming under his own immediate observation. In company with many others, I myself visited the scene of the disaster. The course of the bolt was plainly shown by the shattered ceilings and walls, while the floors were covered with a debris of feathers, plastering, broken lath, and splinters, fearful to behold.

A person struck or shocked by lightning, never sees the flash, or hears the report; and where death ensues, it is perfectly painless; every nerve being instantly paralyzed, and the machinery of life hushed without a struggle, or move of a muscle. Just here a question arises which may perhaps be worth while to investigate. May not the act of drawing in the breath at the time, have something to do with the nature of the shock? In case of a person being shocked, the best thing that can be done, is to pour cold water upon him as quickly as possible.

The safest place in a severe thunder storm, is upon a feather bed in the middle of the room, as far as possible from windows, open doorways, stoves, fireplaces, or bright metallic substances. The cellar is unsafe; for if the bolt should happen to ascend from the earth to the clouds, as is sometimes the case, the basement would suffer most. If out of doors, avoid standing near iron railings, or under trees; as lightning is more liable to strike metallic substances, and elevated objects. The barn where much hay, grain, and vegetables is stored, is also an unsafe place.

The loudest thunder can probably be heard to the distance of twelve or fifteen miles. The distance can be determined very nearly by observing the time that elapses between the flash and the report, and allowing five seconds to the mile for the passage of the sound. The sound of the thunder appears to start with the electric flash, and to follow it through its course. Some claim that the sound is produced by vibrations of the atmosphere, caused by the rapid passage of the electric spark; while others maintain that the air is burned, or forced aside by its passage, and the sound of the thunder is produced by the surrounding air, rushing in to fill the void. The real cause has probably never been satisfactorily explained.

When the soil is wet, and well soaked with water, the lightning generally plays among the clouds; few bolts descending to the earth, and those commonly light. Hence, the greater danger is to be apprehended in times of dry weather. For the Lightning Rod, the world is indebted to the talented spirit of Benjamin Franklin. They are best when made of copper; but if composed of iron, they should be at least three-fourths of an inch in diameter, and in all cases, terminated upon the top by a bright platinum point. When of sufficient size, and properly put up, they are believed to protect a circle, the diameter of which is four times the height that the rod ascends above the building. Thus, if the rod ascends six feet above the top of the roof, it will protect a space twelve feet from it, in every direction; or a circle twenty-four feet across. Care should be taken that it be surrounded by wood or glass at the points of support, and that its lower end extend into the ground deep enough to reach constant moisture; otherwise it will probably prove a source of danger, instead of protection.

The Aurora Borealis or Northern Lights, which are often so brilliant in the Northern regions, is supposed to be the working of electricity. Some tell us that the sheet lightning so often seen during the warm summer nights, are silent flashes of electricity; but does it not appear probable that it may be the reflection of lightning in some far off storm-cloud; which may be below the horizon, perhaps a hundred and fifty miles away.

Similar states of electricity *repel* each other, and *opposite* states of electricity will *attract* each other. If a piece of glass or sealing wax be briskly rubbed with a silk handkerchief or piece of flannel, they will acquire more than their natural amount of electricity and are then said to be *positively* electrified; while the silk or flannel having parted with a portion, are said to be *negatively* electrified. The sealing wax and glass will now attract or draw to them light bodies near by; such as feathers, bits of paper, pith balls, etc. In the same manner the clouds are drawn towards the spot where the greatest amount of electricity is, and the storm-cloud rapidly gathers. The war of the elements now commence, and continue until the whole mass is uniformly electrified; and then the lightning ceases, and the clouds instead of drawing together *repel* each other, the shower breaks up, and is said to have rained

out. If the fur of a cat's back be gently stroked with the hand, in a dark room, a sparkling and crackling will be observed. It is caused by the interchange between the *positive* electricity of the fur and the *negative* electricity of the hand; and is really nothing more or less than lightning in miniature.

For the purpose of developing and accumulating electricity, we have the Electrical Machine; consisting of a glass wheel or plate revolving against rubber, silk, etc.; and by means of this, and the Leyden jar which is charged by it, many amusing and wonderful experiments may be performed. The earth, metals, water, the human body, etc., are good *conductors* of electricity; and sulphur, sealing-wax, feathers, silk, glass, etc., are non-conductors. Now if a conducting substance be completely surrounded by non-conducting substances, none of the electricity communicated to it can pass away. It is now said to be *insulated*, and charged.

If a piece of tin foil be placed over the centre of each side of a pane of glass, and a prime conductor of an electrical machine be brought in contact with one of these, it will contain *positive* electricity, while the other will contain the *negative*; for equilibrium cannot ensue through the non-conducting glass. If, now, a person step up and place the finger of one hand upon the foil upon one side, and the finger of the other hand upon the foil on the opposite side of the glass, a connection will be made; and as the fluids rush together to equalize, the person will receive an electric shock. If a person stand on a stool with glass legs he is said to be insulated; and if while in this position he touches the prime conductor of an electrical machine in motion, he can be filled with electricity until the very hairs of his head stand in all directions. Should another person dare approach and touch him while in this situation, a spark would pass between the two, and the result would be almost as though he had been struck by lightning. Again, should the insulated person raise his hand to the opening of a gas-pipe, there would be a flash, and the escaping gas would be set on fire in an instant. Gunpowder may also be ignited by electricity; and by its aid water can be decomposed and separated into its two elemental constituents, oxygen and hydrogen. If these two elements be now put into a strong glass vessel, and an electric spark passed through them, they will instantly combine with a sharp explosion, and water will be formed again. For the more powerful electrical experiments we have a combination of Leyden jars, termed a battery. The discharge of the Harlem battery, Holland, is said to be sufficient to kill an ox.

The operations of Electricity in Galvanism and Magnetism are truly wonderful; but a full explanation cannot be expected in an article like this. The reader has doubtless seen pocket knives that would draw up and hold suspended needles, steel pens, etc.; but what would he think to see a bar of iron weighing eighty pounds raised and suspended in the air without being in contact with anything? Such, however, has been done; and the experiment witnessed by many at the Smithsonian Institution at Washington. The most powerful Electro Magnets are formed of soft iron bent in the form of a horse shoe, and wound with wire. They have been constructed in this way strong enough, when a current of electricity was passing through the wire, to sustain a ton.

The *Galvanic* battery is mostly constructed of copper and zinc, in the form of cylinders or cups, one within the other, containing dilute sulphuric acid and nitric acid; and the electricity used is excited by *chemical* action. It is the Galvanic battery used in the process of electrotyping and gilding and plating, and for the telegraph. With it a heat may be generated strong enough to fuse iron, and even cause it to pass off in vapor; while a light may be made so exceedingly brilliant that the eye can scarcely withstand its dazzling rays.

Benjamin Franklin was the first to demonstrate to the world that electricity and lightning were one and the same. While at Philadelphia in 1752, he constructed a kite of a silk handkerchief, and fixing a bright pointed wire upon the top, prepared for a bold experiment. A thunder storm appearing, Franklin brought out his kite and let it rise to a great height. He now tied a key to the lower end of the string, and to this he attached a silk ribbon which he fastened to a post and awaited the result. After some time the string appeared as though it were excited by electricity; and as he gently touched the key with his knuckle he received a slight electric shock. The rain now began to fall; and the string becoming wet, bright sparks flashed in profusion from the key. It was an hour of pride to Benjamin Franklin. He was a discoverer; and the light that he in after years threw on this great branch of science made his name justly famous; for it ultimately led to the invention of the electric telegraph.

The science of electricity is at present but very little known; and what astounding discoveries in this important branch await the future world, we know not; though with such a universally diffused, all-powerful element, we can scarcely be extravagant in our imagination. It will probably account for a great share of the wonderful feats of jugglers and showmen; it may unveil the mysteries of so-called spiritualism; which the very mediums themselves declare they do not understand; with its magnetic influence it fixes the seal of love upon the youthful brow, and draws heart to heart in fond affection; by its mesmeric power the door of the mind is opened to the brain of another; and as it is everywhere presented it may be used in the future as a means of communication the world over; and who knows but that the time may come when we shall not need wires; when mind can communicate with mind a

thousand miles away, by means of this all-pervading medium; when even the *thoughts* of mankind will be known, and such a thing as a secret cannot be kept.

Comparatively speaking, but a few years have elapsed since it was discovered in any other form than that of lightning; and already electro-magnetism has been used as a motive power for propelling machinery. An electro-magnetic engine was built at St. Petersburg, in 1838, with a power sufficient to propel a boat containing twelve persons. And what though the experiment cost \$120,000, and the invention worked clumsily and awkwardly, it was perhaps not wholly lost. The first steam engines worked the same. It required a Watt, a Stephenson, and a Fulton to bring them to perfection. Hundreds of scientific minds are to-day investigating and studying out the hidden powers of Electricity; and depend upon it the progress of inventive genius among mankind is never backward.

Of all the discoveries and inventions yet made in the whole range of electricity the Electric Telegraph is the most wonderful. By it space and time are annihilated, and our wishes communicated to others a thousand miles distant in the twinkling of an eye. A wire connects the battery underneath the table with one end of the metallic horizontal lever of the manipulator upon the top. When a dispatch is to be transmitted the finger is pressed upon the button on the opposite end of the lever, and a connection made between it and the wire, which is constantly interrupted and re-connected again, in order to produce the dashes and dots of the telegraphic language. In an instant it has reached its destination, even though it be a thousand miles away; and the electro-magnet that works the lever of the telegraphic receiver there, thrills with excited electricity at every connection, while the dots and dashes of the alphabet are permanently registered upon a paper ribbon kept in proper motion by a system of clockwork run by a weight. Below will be found the telegraphic alphabet, which any one can learn in a short time and be enabled to read or transmit dispatches. Experienced operators discard the paper ribbon and read from sound only:

a. — b. — c. — d. — e. — f. — g. — h. —
i. — j. — k. — l. — m. — n. — o. — p. —
q. — r. — s. — t. — u. — v. — w. — x. —
y. — z. — . — — — — —
1. — 2. — 3. — 4. — 5. — 6. —
7. — 8. — 9. — 0. —

For this great triumph of modern science the world is indebted to the indefatigable labors of S. F. B. Morse, L.L.D., of New York. It would be interesting to follow his history; but we have not the space at present. Thirty-one years only have elapsed since it was first established in America. To-day it contains more than 50,000 miles. It climbs the Rocky Mountains and stretches across the lonely plains to the Golden Gate of the Pacific. It crosses the briny waters of the Atlantic Ocean, bringing the Old and New World into instant communication; and soon shall we hear the whole world is encircled with a medium whereby the mind of man can be flashed along at the rate of a hundred thousand miles in a second! Who would have dared predicted this a hundred years ago?

An Atmospheric Phenomenon.

A Russian journal publishes some interesting details regarding an atmospheric phenomenon, which was followed by an earthquake, in the village of Kola (a town situated at the extreme northern point of Russia), and which was at first attributed to the effect of an internal convulsion of the earth. According to our contemporary, it was the fall of an enormous asteroid which occasioned the earthquake. The meteor probably fell in the environs of Kola, although the precise spot has not yet been discovered. Violent winds and snow storms preceded the phenomenon. A few hours previous to its occurrence there had been several remarkable appearances of the "Northern Lights;" finally, about four o'clock, the asteroid fell. It passed over the town to the west, and, during its course, there formed round the meteor a dark cloud, which suddenly extended itself far and wide, and plunged the town in profound darkness. A few seconds after, fearful thunder claps were heard, the earth trembled, and began to heave in a violent manner. An earthquake occurred on the shores of the White Sea, at a distance of about 500 kilometres from Kola, at about seven o'clock the same morning.

DOCTORS' CANES.—It was formerly the practice among physicians to carry a cane having a hollow head, the top of which was gold, pierced with holes like a pepper-box. The top contained a small quantity of aromatic powder, or of snuff; and on entering a house or room where a disease supposed to be infectious prevailed, the doctor would strike his cane on the floor to agitate the powder, and then apply it to his nose. Hence all the old prints of physicians represent them with canes to their noses.

Artesian Wells in Los Angeles, Cal.

Mr. A. Chase, of the United States Coast Survey, read a paper on the artesian wells of Los Angeles county. The plains of Los Angeles, he said, slope gradually from the sea-coast northward to the foot hills of the Sierra Madre, which rises to a height of 10,000 feet, and is forty miles distant. The general trend of the coast line, as well as of the Sierra, is east and west. Even during a dry season the quantity of water brought down from this extensive water-shed is great. The three principal rivers which carry it off are the New and Old San Gabriel and the Santa Anna, which in Winter are torrents, but in Summer dwindle into rivulets, and frequently sink into sand and become lost before reaching the coast. Los Angeles and Anaheim obtain their water supply by ditches from the rivers; but should these towns grow to any considerable size, other means will have to be devised. Artesian well borings were commenced some years since. So far as his observation extended, they had been a success only in a narrow belt extending across the plain in a direction parallel with the coast line and the mountain range. Lying immediately on the coast line is a succession of isolated hills. At their base, east of Wilmington, are springs of soft water which might be called natural artesian wells. The most remarkable of them is at the ranch of Alamitos, where the spring has a diameter of seven feet, a temperature of 64 deg. Fah., and brings up in suspension particles of mica and sand. Similar springs are found elsewhere. Thirteen miles from the coast is Anaheim. An artesian well was sunk here to a depth of 200 feet, through sand and clay, finally encountering a bed of boulders, but no water was obtained. Near Wilmington, also, a well to the depth of 400 feet was unsuccessful, but at Westminster, half-way between Anaheim and the coast, 34 wells are in operation. Two of these, those on the ranches of Mr. Edwards and Mr. Stevens, were described by Mr. Chase. That of Mr. Edwards has a depth of 171 feet. The temperature of the air at time of observation was 71 deg. Fah., and of the water 64 deg. The water is soft and brings up mica and sand. The strata penetrated consists of sand and loam 3 feet; tough blue clay 23 feet; alternate layers of clay and sand 67 feet; tough blue clay 40 feet; and quicksand and fine gravel 38 feet. At depths of 140 and 150 feet holes were made in the piping, which admitted the water from the quicksand and gravel formation. Stevens' well is 94 feet deep, and the bottom stratum is of the same nature. The temperature of the water when tested was 65 deg. Fah., and of the air 69 deg. The other wells resemble these closely. The water only flows to the surface after the layer of tough blue clay has been penetrated and the quicksand reached, at depths varying from 90 to 180 feet. At Compton, between Wilmington and Los Angeles, and at Los Nietos, between Los Angeles and Anaheim, other wells are flowing. The question arose whether a subterranean basin exists under these plains, fed by the rainfall of the mountains, which finds its way in through crevices in the foot-hills, and is confined in places by the strata of clay and cement, discharging its surplusage through the springs on the coast? or is there a subterranean river running through a bed of quicksand, and passing through an old canon or burranca, and having spurs or offshoots to the natural springs, but emptying the main body of water under the sea? Since the wells have been opened no sensible diminution of the water has taken place, nor is the water from the natural springs lessened.

The Unconscious Action of the Brain in Playing.

An organist once told us of an odd experience that happened to him while playing for the people to sing in church. The tunes were of the simplest character, and he read the music from the book with the same ease as one would read a newspaper. His readiness at reading and the great range of music he went over in a year made him forgetful, and he was at all times obliged to have the music before him. One Sunday while playing some old and familiar choral, he looked up at the pipes in that absent minded way some organists have, and listened to the flood of music that rolled through the church. Suddenly he lost his place, and in alarm looked

at the books to see where it was. He could not find it, could not tell whether it was the first or last line. He listened to the words, but could not make them out, and in a perfect fever of excitement went on playing. The perspiration started out on his face. He was in a curious state of mingled terror and helplessness, and through it all he went straight on and finished the tune correctly. When the verse was concluded he had a chance to recover his place, and the piece was finished without accident. On two other Sundays this singular experience happened to him, and each time his fingers gave the music without mistake, while his mind was utterly confused, and while he could not tell what was going on. The only explanation he could give of this was that the brain played the music unconsciously. It could not be said that the fingers played it. They moved only by impulse from the brain. At the same time all deliberate power over the mind seemed to be lost. There can be no doubt but that the mind often acts unconsciously. When we wish to recall a long-forgotten name and cannot, we have only to drop the subject and think and speak of something else, and oftentimes the forgotten name will come of its own accord. The brain, if permitted, will search for it, and unconsciously work over the subject, through all its associations, till the chain of connecting links is complete, and the lost name is traced out. This unconscious action of the brain has been made the subject of much scientific research. To our thinking, the brain does a great deal of gratuitous and uncalled-for work for us. In the case of the organist, his brain had gone through that particular tune so many times, that it had acquired the habit of giving certain commands that were translated by the eye to the hand. When the eye was withdrawn in the middle of the work, the brain mechanically delivered the rest of the instructions to the hand, even while his mind was quite detached from the subject, and the eye had lost its place. This curious action of the brain may often be noticed in playing and singing. We often hear a person singing a familiar song when quite busy with some other work, and we are compelled to explain it by this voluntary and unconscious action of the brain. This also goes to explain in part the action of the mind in playing long pieces from memory.

Fungus.

The vegetable parasites which attack the higher organisms and slowly lead to their destruction perform a more important part in nature than appears at first sight. Wonderfully small plants count among the most energetic agents of those innumerable transformations which are constantly going on in the organized world, and cause the spectacle of life to be an ever-moving, ever-varying picture. When anything dies, either animal or vegetable, the elements of which it is composed return into nature's bosom; they serve to nourish new beings, which are in their turn decomposed. Myriads of microphites and microzoaires, disseminated in the air, hasten the work by attacking organized bodies otherwise inert. Some acting in the form of ferment, transform the tissues into new products, which serve as nutrition for vegetables; others give to animals the albuminoid principles which they require. Thus between the two kingdoms there is a perpetual change, and life presides over the work of death.

These cryptogames show great reproductive forces, and there are few bodies in nature at whose expense they cannot find sustenance. Some vegetate on the hardest granite, others absorb with impunity virulent poisons. Every one knows the deleterious effects of white lead—how the smallest portions in the air, daily absorbed by the respiratory organs, exercise on man a poisonous action, ending in death. Yet a fungus grows upon the refuse-heaps thrown out of the manufactory; it is saturated with lead, and becomes itself, by the absorption, a virulent poison. It appears that it is possible to take away from these hurtful kinds of fungi the noxious principle. The peasants of the Ukraine eat the false orange and other kinds with impunity, after salting them for some time.

Another sure way is said to be by steeping them in water, with the addition of vinegar and salt. Three or four hours of this immersion suffice to make the worst kinds eatable on the condition that they are thrown into boiling water when taken out; and both these liquids must be carefully thrown away, as they retain the poison. This purification of fungi has been mentioned in

more than one ancient work, but the wisest plan is not to try anything so doubtful. The poisons of many kinds is indeed so dangerous as to inconvenience those who simply breathe their emanations, and more than one botanist has been nearly suffocated by having left specimens in his bedroom.

Some antiseptic substance entirely arrest the growth of cryptogames, and have taken an important place in commerce. These are used to preserve wood; others for corn, seeds and pastes, so that they may not afford aliment for what we call mould, only another word for small fungi. The efficacy of such agents is not altogether certain. Thus resin ordinarily preserves those woods which are impregnated with it; yet there is a fungus which grows on the larches of Savoy, and draws from the trunks where it establishes itself a considerable quantity of resin, sometimes a third of its own weight. It only appears on trees that are already old, and gives the finishing stroke to their existence by carrying off the interior resin, rendering them liable to the attacks of other kinds of fungi or insects. The woodman who sees them in his plantation hastens to profit by the warning, and cuts down the tree. Thus various are the conditions in which cryptogamous plants develop themselves.

Gesture Language of Animals.

"As an example of gesture-language," says the Rev. J. G. Wood, "nothing could be more expressive and intelligible than the method employed by a Skye Terrier belonging to one of my correspondents. He had formed a friendship with a kitten, and the two were one day in the garden. Presently the kitten wished to go into the house, and finding the door shut, tried to call the attention of the servants by mewing under the window. She could not succeed in making them hear, whereupon her friend, the Skye terrier, picked her up gently in his mouth, held her in front of the window, and shook her backward and forward so as to be seen by the servants. They understood what the animal meant, let the kitten into the house, and ever afterward the dog employed the same expedient. It is exactly that which would have occurred to a human being under similar circumstances.

High Speed on Railways.

The modern locomotive is one of the most marvellous and ingenious of man's inventions, but great as it is in this respect it does not completely fulfill the demands made upon it. It stands to-day the best exponent of mechanical power and durability we have any knowledge of, but the world wants a better servant, and must, in the nature of things, finally obtain it. The public are constantly urging railway managers to make better time—to increase the speed of express trains—and the managers are endeavoring to satisfy the demand; but up to the present time they have only succeeded in ascertaining that while it is possible to run trains at a velocity of a mile in one minute, the expense of maintaining such trains is an insuperable obstacle to their use.

The wear and tear of locomotives and rolling stock, and the injury to the permanent way; the expenses in keeping up the road bed, embankments, bridges, and the cost of the equipment of a modern railway are enormously increased by running at high velocities. The mechanical difficulties are not insurmountable. Engines can be made to turn their wheels as fast as any one wishes to ride after them, but until we can build a road bed and equip it with a rail that will annihilate the effects of heavy blows from heavy bodies at a high velocity—until we can overcome the existence of live force and neutralize its effects, we may relinquish the hope of a remunerative traffic at a high speed.

Trains have been run for long distances in this country at high velocities, only to demonstrate the views above set forth. Locomotives have been built with enormous driving wheels six and seven feet in diameter, and driven as fast as the pistons could propel them, but one after another they have all been discontinued, and the regular rate of twenty-five and thirty miles an hour is maintained as the highest speed profitable. What engineers have done to overcome space rapidly is to render the locomotive capable of making long runs without requiring to stop for fuel or water. If it cannot run at a high velocity without destroying itself, it can keep running at one comparatively low, and accomplish good results.

It is possible to leave New York at ten o'clock in the morning and reach Buffalo at twenty minutes past ten in the evening, which, viewed by itself is not a small achievement. The average rate of speed required to accomplish the distance in the time mentioned is about thirty miles an hour; the actual running speed is higher than this to make up for unavoidable detentions at stations and decreased speed through towns and at road crossings. Yet even this is unsatisfactory to the people at large, who are, as we have said, constantly asking for quicker transit. It may be urged that abroad trains are run rapidly, at much higher rates of speed than in this country, but this is true in a few instances only. The climate of England, however, permits of making a much more stable roadway than our own; it is more easily kept in alignment, and stock runs with less injury upon it. Frosts do not strike three and four feet deep there as they do in exposed sections of this country, and stockholders lay out more money in cost per mile of road built than American stockholders care to. But, though some trains do run at a speed of fifty miles per hour, it is said in a recent report that they are not profitable; the same causes working against them there as here. The most remunerative trains are those which run at the lowest rate of speed.

The existing locomotive, wonderful as it is, can accomplish no more than it has done. It may admit of various refinements in mechanism, improvements in itself, and additions to its capacity; but so long as its enormous weight continues, so long as its power depends upon its weight for its very existence, as it does, just so long it will destroy as it moves if driven beyond certain velocities ascertained to be profitable.

The locomotive of the future and the railway train of the future to achieve high velocities will have to be of different construction and character; vastly different from those now employed. Master mechanics and car builders are racking their brains to reduce weight and retain strength and stiffness in constructing cars and engines, but beyond a certain point they are unable to get, and they will always be met by the same obstacles while the conditions remain unchanged. We must have lighter motors of increased force; lighter cars with greater strength; more solid roadways without curves, high embankments, long spanned bridges or deep cuttings. When all these conditions are obtained we may fly over the earth's surface a mile or two in a minute as easily as birds traverse the air. It is not too much to achieve. If man can converse with his fellow on the other side of the world in a minute, he may in due time solve this problem also.

Powers of the Microscope.

There is a story that an eminent microscopist had a bit of substance submitted to him to decide what it was. To an unaided eye it might be a morsel of skin which a baggage-smasher had knocked off the corner of a smoothly-worn hair trunk. The *savant* appealed to his microscope. Entirely ignorant of this tiny bit of matter, except as he had taken counsel with his instrument, the wise man declared that it was the skin of a human being, and that, judging by the fine hair on it, it was from the so-called naked portion of the body, and, further, that it belonged to a fair-complexioned person. The strange facts now made known to the man of science were these: That a thousand years before, a Danish marauder had robbed an English church. In the spirit of the old-fashioned piety the robber was flayed, and the skin was nailed to the church door. Except as tradition or archaeological lore had it, the affair had been forgotten for hundreds of years. Time, the great erodent, had long ago utterly removed the offensive thing. Still, however, the church door held to its marks of the great shame, for the broad-headed nails remained. Somebody extracted a nail, and underneath its flat head was found an atomic remnant of that ancient Scandinavian malefactor's pelt—that fair-skinned robber from the North.

AN IDAHO correspondent speaks of a new and undescribed species of fish that was last summer discovered to inhabit a small lake in the mountains, on a tributary of Peyette river, weighing from five to ten pounds, in shape much like a shad, and having a skin and scales of a deep blood-red color. The meat is of a bright yellow color, and delicious in taste.

The Locomotion of Serpents.

We read that the curse pronounced upon the serpent was, "Upon thy belly thou shalt go," and the inference seems to be that, previous to that time, its mode of progression was not upon its belly. This would imply a great anatomical change in the structure of the creature at the time in question, a change which, so far as we are aware, is not proved by paleontological research, and the expression is probably a figurative one, as observed by Dr. Buckland. Serpents progress by the "foldings and windings they make on the ground," and the stiff, movable scales which cross the under portion of the body; but the windings are sideways, not vertical. The structure of the vertebrae is such, that upward and downward undulations are greatly restricted, and many illustrations showing sharp vertical curves of the body are exaggerations. Most persons have seen snakes glide slowly and silently, without any contortion. They seem to progress by some invisible power; but, if permitted to move over the bare hand, an experiment easily tried, a motion of the scales would be perceived. These are elevated and depressed, and act as levers by which the animal is carried forward. Nor can a serpent progress with facility on the ground without the resistance afforded by the scales. It is stated that it can not pass over a plate of glass, or other entirely smooth surface. We saw the experiment tried, by placing a small pane of glass in a box, in which was a common black snake. He was made to pass over it repeatedly, but evidently found that he had no foothold on it; and the third time, as he approached it, elevated the fore part of his body slightly, and brought his head down beyond the glass, and, on passing, his body seemed scarcely to touch it. This gave an opportunity to witness the wave-like movement of the scales, that is, of their elevation, which runs from the head to the tail, enabling the animal to move continuously, instead of by a series of minute pushes, as would occur if all the scales be lifted and depressed at once.

THE MARINER'S COMPASS, GAS AND GUNPOWDER.

BY JASPER T. JENNINGS.

The smallest inventions sometimes pave the way to the greatest discoveries. Particularly is this the case with the mariner's compass. It is but a minute nautical instrument, working upon a simple law of nature; and yet it has done more for man than all the combined armies that have ever been raised on earth. A thousand years ago, navigation was conducted by the aid of sight alone, and the sun, moon, and stars were man's only guide. The boldest mariner rarely dared venture far beyond the sight of land, for the heavens were at any time liable to be overcast with clouds for days together, and then, without any guide by which to direct his course, he would be utterly lost upon the trackless deep. Hence it was confined to very narrow limits, and the passage of the Mediterranean Sea was looked upon as a great undertaking.

Europe, Asia and Africa, with a few adjacent islands, constituted the whole known world. The circumnavigation of Africa by Necho, and the voyages along its shores by Satespes and Hanno, were reckoned by the ancients as among the greatest voyages of discovery ever attempted by man. And, indeed, at that time they were; but with the discoveries in magnetism and its application in the invention of the mariner's compass, a new aspect was given to navigation, and new pages recorded in the geography of the world.

The loadstone, which is an ore of iron of a dark color, found in various parts of the world, is a natural magnet. If needles or small bits of iron be brought near it, it will draw them instantly to its surface, and hold them there by its own power of attraction. If a piece be fastened to a cork floating upon the surface of a basin of water, it will in a short time settle in a north and south direction; and, indeed, at the time of its introduction into Europe, about the middle of the thirteenth century, it was all there was of the mariner's compass. Even this rude instrument was an unerring guide, and the mariner boldly put out to sea, hundreds of miles from land, without fear. The inventor of this valuable instrument is unknown, though the Chinese claim the honor of the discovery.

If the north pole of a magnet be placed on the center of a steel bar, and drawn several times towards one extremity, and then reversed and the south pole drawn repeatedly from the center towards the other extremity, the bar will become magnetized. If it now be balanced upon a point it will at once commence to vibrate and ultimately settle in a north and south direction. Upon this principle the mariner's compass is constructed.

The greatest scientific minds have never yet been able to explain satisfactorily all the wonders of magnetism. In one sense it has a great resemblance to electricity, and it is highly

probable that it may be out a modification of the same force. Like electricity it is an invisible fluid, without sensible weight, and so very subtle that it pervades all bodies capable of being magnetised. If the north pole of one magnet be placed near the north pole of another, they will repel each other; but if the north pole of one be placed near the south pole of another, they will attract each other. In this respect it is similar to the positive and negative states of electricity, and may be governed by the same law—like states repelling each other, and opposite states attracting.

The earth itself is supposed to be a great natural magnet, and the attractive influence of its magnetic poles, which are situated a short distance from the geographical poles, are supposed to give the direction to the magnetic needle. Captain Parry, while engaged in his voyage of Arctic discovery, came upon a certain spot in the northwestern extremity of Baffin's Bay, about 19 degrees from the north pole, where the magnetic needle which had been varying to an extreme degree for some time, absolutely went half round the compass and pointed due south. It continued to point thus as he sailed on to the north, and therefore the spot where the change was made was denominated the north magnetic pole. The magnetic poles are never stationary, but are ever varying to the east or west, and back again in long periods of years. There are two lines on the earth's surface passing irregularly from north to south, one through America and the other across the Eastern Continent, where there is no variation of the needle. East or west of those lines the variations are sometimes considerable. It is also subject to daily and yearly variations, and in order to be a good surveyor or navigator these must be understood.

In time the mariner's compass was improved; and now the magnetic needle was balanced upon a steel pivot, in a circular box containing a card, upon which the different points of the compass were marked. Christopher Columbus now appeared upon the scene, with a mine of geographical knowledge. He had studied much, and he had a theory of his own. He believed the world to be round; and that a passage could be made to India by the way of the Western or Atlantic Ocean. His opinions were received with jeers and laughter. He had no money, and was without the confidence of the people. He applied to Ferdinand and Isabella, the King and Queen of Spain, for aid, and a fleet of three small vessels were fitted out and placed at his disposal. On the 3rd of August, 1492, he left the Spanish port, and with the mariner's compass for his only guide set sail for the voyage across the wide Atlantic. It was a bold undertaking, and many deeming him a fool or madman declared they had seen the last of him or his crew. Day after day the sun arose and set in its ceaseless round, and revealed nothing but the trackless deep. The men became discouraged and sick of the enterprise, and wished to return. It was now observed for the first time that the magnetic needle did not point to the north. They were unacquainted with the laws of variation, and the men looked upon the compass with alarm. They would go back—they were ready for mutiny. Columbus could not give up the enterprise. He pretended to explain this new phenomena to his men, though the real cause he himself did not understand. He reasoned and expostulated with his rebellious crew, and continued on his course a few days longer, and on the morning of the 12th of October he landed at San Salvador. He believed he had reached India, and he gave the inhabitants the name of Indians. He returned to Europe and received the welcome plaudits of the world. His opinions, which had been denounced as foolish and visionary, were demonstrated to mankind as established facts, and civilization was to advance with rapid strides. Such was the great triumphs of the mariner's compass; and had it not been for that simple instrument America might at this hour have been a howling wilderness, and the true shape of the world unknown.

Another noted inventive discovery of more modern date is illuminating gas. A few years since all the cities in the world were nightly buried in darkness, excepting, however, a little spot now and then, where an oil lamp or dingy lantern cast its feeble rays. Illuminating gas was first made in England, by Dr. Clayton, in 1739. He filled bladders with it and burned it like a candle for the amusement of his friends; and although he might have speculated upon the benefits following its application, he failed in bringing its notice before the people sufficient to ensure success. They did not understand the use and benefit the new discovery might confer upon the city. They did not realize that its intensely brilliant flame was to illuminate every street and narrow alley, and turn darkness into day, and for sixty years this important invention was neglected.

A new advocate now came forward. This was Mr. Murdock, who was soon to display its merits to the world. Its first application was in 1792, in lighting his offices and residence in Cornwall. In 1798 he lighted the extensive machine shops of Watt and Boulton, near Birmingham. At the peace of Amiens, in 1802, there was a general rejoicing all over England; and when the sun had set, and the sable curtain of night had been spread, a grand coal-gas illumination was to be made in one of the principal streets of Soho, near Birmingham. The lights were disposed in hundreds of beautiful forms,—in clusters, crosses and crescents,—and thousands from Birmingham came out to witness the dazzling display. That night carried the worth of the discovery to a believing people, and its useful application was thenceforward rapid.

If a common tobacco pipe be filled with coal, and the bowl closed with a bit of clay and placed in the fire, a smoke will soon be seen to issue from the stem. This is gas; and if a match or candle be applied it will take fire and burn with a small brilliant light for some time. Upon this principle the great gas works of to-day are built. Bituminous coal is placed in large iron cylinders, which are closed and cemented air tight and heated from a furnace underneath. As the gas is formed from the coal it passes off through small iron pipes into a large tube, denominated the hydraulic main. This is about half filled with water, and as the gas passes through much of its impurities are deposited therein. It now enters another pipe and is conveyed underground to a broad iron cylinder dipping into a reservoir of lime water. This cylinder is perforated with holes, and as the gas comes in contact with the lime water its sulphur is attracted and separated, and leaving the last impurity behind it becomes fit for burning. Passing out by means of another pipe, it enters the gasometer, where it is stored for use.

The gasometer is a huge cylinder, often 80 or 90 feet in diameter, closed at the top but open at the bottom, and is composed of iron plates firmly riveted together. It sets in a circular channel or tank, incased in brick and cement, and filled with water. As the gas enters from underneath, the gasometer is raised upwards until its lower edge is but slightly submerged, and it is stopped by a beam fastened overhead. A chain is fastened to the top, which passes over two pulleys and descends by the side of the frame to the ground. Upon this chain heavy weights are hung, and by this means the gasometer is kept in its proper place. As the gas is wanted a stop-cock is turned, one of the weights thrown off from the chain, and the huge iron gasometer slowly settles down into the circular tank of water, pressing the gas out into cast iron tubes, often more than a foot in diameter, but which branch out into hundreds of smaller tubes, like the arteries of the human body, and traversing the different streets, two or three feet underground, again branch out, and entering the different houses furnish light to thousands. The chemical name of coal gas is carburetted hydrogen.

Among all the different explosive combinations, none have served man better than gunpowder. It was discovered by Schwartz, a German monk, while engaged in the study of alchemy, searching for the "philosopher's stone" and the "water of life," in the early part of the fourteenth century. It consists of a mixture of 74 parts of nitre, 10 parts of sulphur, and 16 parts of charcoal, by weight. The ingredients are carefully mixed, ground in water, pressed, and broken, and then passed through sieves, which gives it the form of grains. Its greatest benefit to man is in blasting rocks on the surface and in the mines. In war it is the most powerful agent of destruction; sending with unerring precision from the cannon's mouth the ponderous ball, to tear down solid walls of stone and rend asunder the stout oaken timber of vessels; and by its aid the murderous shell is hurled, to mangle mankind and send them to an untimely grave. It has taken the place of the spear and battle axe, the lance and the knife, and though there is no humanity in war, it is not so bad as it used to be. Let us hope the time is near at hand when the world shall learn the folly of war, and turn to the paths of wisdom, peace and progress.—Its explosive force has been calculated at about 15,000 pounds upon the square inch confining it.

Chemistry of the Body.

BY DR. JAMES R. NICHOLS.

If we could subject the body of an adult person, weighing 154 pounds, to the process of chemical analysis, and then set down the results in the usual way, it would read as follows:

	lbs.	oz.	grs.
Oxygen	111	0	0
Hydrogen	14	0	0
Carbon	21	0	0
Nitrogen	3	8	0
Phosphorus	1	12	190
Calcium	2	0	0
Sulphur	0	2	219
Fluorine	0	2	0
Chlorine	0	2	47
Sodium	0	2	116
Iron	0	0	100
Potassium	0	0	290
Magnesium	0	0	12
Silicon	0	0	2
	154	0	0

The oxygen and hydrogen, for the most part, are combined in the body in the form of water; of this compound there would be about 110 lbs. The carbon is mainly contained in the fat; the phosphorus and calcium exist in the bones; the other minerals in the juices of the flesh and in the blood. Of course the statements as

given are but a rude approximation to the truth, but they are, nevertheless, sufficiently exact to afford a tolerable correct idea of the nature of the substances, and the amounts which enter into the human organization.

From this presentation it will be seen that the body holds sufficient water at all times (about 14 gallons) to drown the individual, if it were contained in a suitable vessel. Under ordinary circumstances six pints of this water leave the system each day. If we drink largely, of course an increased quantity is eliminated through the excretory organs. This liquid finds its way into the system through the food and drink. Considerably more than half the bulk of all the bread, meat, and vegetables used as food is water. There is no other substance but water which remains unchanged after entering the body. Under the terribly destructive influence of vital chemical action, all other agents and bodies are torn asunder, and from their elements are formed new compounds of most strange and complex natures; water flows through our life, as it flows from mountain cataracts and meadow springs, unchanged and unchangeable, save in its physical aspects and condition.

Of phosphorus, every adult person carries enough (13.4 pounds) about with him in his body, to make at least 4,000 of the ordinary two-cent packages of friction matches, but he does not have quite sulphur enough to complete that amount of the little incendiary combustibles. This phosphorus exists in the bones and in the brain, and is one of the most important constituents in the body. Every schoolboy is acquainted with those strange metals, sodium and potassium, for he has seen them flash into a brilliant flame when thrown upon water. The body contains 2.14 ounces of the former, and a half ounce of the latter metal; enough for all needed experimental purposes in the schools of a large city. The 12 grains of magnesium would be ample in quantity to form the "silver rain" for a dozen rockets, or enough to create a light which, under favorable conditions, could be seen for a distance of twenty miles.

Our analysis disproves the old vulgar notion, that the blood of ten men contains iron enough to form a ploughshare. The 100 grains of metallic iron found in the blood of a healthy adult would be sufficient to make a good-sized pen-knife blade, but no useful implement of a larger size. There is one important element associated with iron in the blood, which does not appear in the "analysis," and that is manganese. This element has not been recognized until a comparatively recent date, and its importance has been strangely overlooked.

But iron, among the mineral constituents of the body, does not stand alone in its important relationship. The metals exist combined with other bodies, or they are locked up in the form of salts, which are vital to the economy. There are five pounds of phosphate of lime, one of carbonate of lime, three ounces of fluoride of calcium, three and a half ounces of common salt, all of which have important offices to fill. Not one of them must be allowed to fall in quantity below the normal standard. If the lime fails, the bones give way; if salt is withheld, the blood suffers, and digestion is impaired; if phosphorus is sparingly furnished, the mind is weakened, and the tendency is towards idiocy.

Musical Fish.

If there is one common characteristic of all marine animals more marked than another, it is their absolute silence, or, to coin a new word, voicelessness. The one exception to this, and we believe it is only an apparent exception, is the musical fish. It is found along the southern portion of the coast of the United States; in the West Indies; and on the tropical coasts of South America; in the Bay of Bengal; in the muddy creeks on the shores of India; around Ceylon; and along the coasts and in the wide rivers of Burmah, and the great island of Borneo. These are the localities in which its existence is recorded, but it probably has even a wider range, and it is not unlikely that it is an inhabitant of all the sub-tropical seas. Its music is only heard at night, or in the evening after the sun has set; and particular spots, often of very limited extent, seem to be haunted by the fish, for on sailing away from them, the sound becomes inaudible, and, on returning, it is heard

again. The accounts of it given by travelers agree as to the main features of the facts, but as might be expected, they differ in some details. The sound always seems to come up from the surface of the water in long notes, low and clear, and perfectly distinct. Sir Emerson Tennent, who heard it in 1848 at Chilka Lake, an inlet of the sea on the east coast of Ceylon, describes it as "like the gentle thrills of a musical chord, or the faint vibrations of a wine-glass when its rim is rubbed by a wet finger *** not one sustained note, but a multitude of tiny sounds, each clear and distinct in itself, the sweetest treble mingling with the lowest bass." Other and later visitors to the same spot have given a very similar account of their experience there. The fish seem, indeed, to abound off the Cingalese coast, and they have been met with out at sea in deep water at least a hundred miles from Colombo. This strange music has been heard, too, in the muddy creeks near Salsette and Bombay, and at Vizagapatam and along the Coromandel coast. Other travelers record having listened to the musical fishes on a calm night among the islands of the Mergui Archipelago, off the Burmese coast, and in fresh water in the Sarumoth River in Borneo. Of these, some say the sound was a prolonged note, rising and falling like the strains of an Æolian harp; others compare it to music borne on the wind from a distant shore; and with others, again, it was a droning, drowsy sound, all of one pitch, and seeming not only to rise from the water, but to fill all the calm air around. The accounts of travelers in America are to the same effect. M. De Thoron heard the sound in the Bay of Pailon, in Ecuador, and in the River Mataje, and he compares it to that of a church organ heard outside the door of a building, when the notes become mingled and indistinct. The fish, which is there called by the natives siren or musico, begins its song about sunset, and continues it through the night. Rev. Charles Kingsley, who visited the caves of the Bacos Islands, near Trinidad, where the musical fish abound, describes the "song" as a simple drumming, or like the noise of a steamer letting off steam. This appears to be a correct description of the sound of the West Indian and North American varieties, for there the fish has received the unpoetical name of the drum, the drummer, or, worst of all, the grunts. The varieties found in the Indian Ocean and Pacific are, however, capable of something more than this, and are well deserving of their title of musical fishes.

What fish it is that produces those sounds is, as yet, more than uncertain. It is, indeed, a question of some difficulty to determine. American naturalists are generally agreed that the musical fish of their eastern coasts and of the West Indies, is a large fish, known to zoologists as the *Pogonias chromis*. It grows to a length of about five feet, and swims about in shoals. In its gullet there are three movable plates, covered with large teeth, and it is supposed that it is the action of these that produces the drumming sound. Of course, anything like a real voice would be an impossibility; but the least noise travels a great way under water, and would be heard distinctly by any one on its surface. The Cingalese at Chilka Lake told Sir Emerson Tennent that the singers there were shell-fish, and he himself inclined to the same opinion; but it appears to us very improbable that it is so. Other writers have suggested that the musician is a fish furnished with a sucking apparatus, by means of which it can attach itself to the bottom of a ship or boat, and that its musical instrument is the row of suckers on its head. There is, however, very little evidence to support this theory. The fact that by applying the ear to the side of a boat, the volume of the sound is increased, prove nothing; for, of course, in any case, the timber, by its superior conducting power, would produce this effect; moreover, the music has been heard in places where no sucking-fish has been seen or caught. The fishermen at Salsette, near Bombay, attribute the power to a small fish very like the common perch; and those at the Bay of Pailon say that it is a white fish with bluish spots on the back, and about ten inches long, which they catch on the spot during the performance.

TO RESTORE COLOR.—When color on a fabric has been accidentally or otherwise destroyed by acid, ammonia is applied to neutralize the acid, after which an application of chloroform will restore the original color in almost all cases.

Gems and Precious Stones.

BY PROF. H. B. CORNWALL.

The diamond is the hardest known substance, and one of the most unalterable gems. It is not affected by chemicals, is infusible, only to be consumed by exposure to a long-continued or very high temperature; and these qualities, combined with its rare brilliancy, make it the most valuable of precious stones. It is pure carbon; chemically almost the same as graphite, or plumbago, and charcoal; but very different from them in its transparency and lustre. It is generally found in octahedral crystals, having highly polished faces; and although possessing some beauty in this natural state, owing to the high lustre of the faces, yet it has not a tithe of the splendor exhibited by a well-cut brilliant. The ancients did not know how to cut the extremely hard diamond and were content to wear it in its natural state, but even thus they prized it highly.

In 1456 Louis Berquien, a Belgian, brought the art of diamond-cutting to a high state of perfection, and it is now carried on chiefly in Amsterdam by the Jews. Nothing but diamond will cut diamond, and therefore the stones are first roughly shaped by cleaving off slices of the gems and rubbing two stones together. Afterwards they are brought to the exact shape required, and finely polished by grinding against a very swiftly revolving disc of soft steel, smeared with oil and diamond dust. On this operation of cutting depends the brilliancy and consequent value of the gem; and as diamonds are sold by weight there is a great tendency to so cut the stone that it may weigh as much as possible. This, however, is a great error, as a stone must be cut in a certain way in order to develop the most perfect lustre, and any additional weight inevitably injures the effect of the cutting.

The most common form of cut diamonds is the well-known brilliant, familiar to all. Another less common form, but producing a fine effect, is the rose diamond—a flat bottom, surmounted by a faceted pyramid, terminating in a point.

According to their transparency and lustre, diamonds are classified into stones of the first water, second water, and refuse stones. To be the first water a diamond must be absolutely colorless, very lustrous, and perfectly free from flaws. An undecided tint of any color injures its value; and although deep red, green, or blue hues may give the stones an exceptional value as fancy specimens, yet in the ordinary market they would be much less esteemed. A yellow tint always depreciates the value; and on this account many of the stones so recently found in South Africa bring very low prices. These African stones, moreover, lack the perfect lustre of Brazilian diamonds, and have in consequence commanded far lower prices.

A well-cut diamond, of the first water, is at present worth in New York about \$50 gold, if it weighs half a carat (the carat being four grains Troy); if weighing one carat, \$175; if two carats, \$550. Above this weight the values depend on very delicate shades of difference. One stone of three carats may bring \$800, another might be worth \$1,000. Above three carats the price is only settled by agreement. A diamond of five carats is a very large stone, and above one hundred carats few are known.

As examples of some of the most celebrated diamonds may be cited the *Koh-i-noor*, one of the English crown jewels, weighing uncut 793 carats; and, after twice cutting, 106 1-16 carats. It is, perhaps, the finest diamond in the world. The Rajah of Mattam has one of 367 carats. The Great Mogul diamond weighs now 279 9-16 carats; uncut 900. The Star of the South, a Brazilian stone, and one of the most beautiful brilliants, weighs 125 1-4 carats.

Diamonds are found in alluvial deposits, from which they are separated by washing. In Brazil the work is done by slaves, and the fortunate finder of a stone of over seventeen carats receives his freedom and a suit of clothes. Scarcely one in ten thousand is found to weigh so much, and the majority of them weigh but a very small fraction of a carat.

The most celebrated localities in ancient times were Golconda and Borneo; but in 1727 the diggings in Brazil were opened, and yielded so abundantly as to greatly depreciate the value of diamonds, and the dealers tried to make people believe that they were not true diamonds.

Lately diamonds have been found in Australia and South Africa, and a few in North Carolina, Virginia, and California; but Brazil furnishes the most abundant supplies and the best gems.

Numerous attempts have been made to produce artificial diamonds, but they have all been in vain. It is even doubtful whether microscopically small crystals have been formed. Diamonds are, however, very well imitated by pastes, which possess all the beauty and fire of the real stones, and flash in our street cars, theatres, and shop windows, quite secure from detection, except by a shrewd judge of human nature as well as of stones.

Next in hardness to the diamond come the *ruby* and *sapphire*, identical in composition, being both nearly pure alumina, which also constitute the mineral corundum, so useful as a polishing and grinding agent. Emery, too, is only an impure form of alumina.

The ruby of the first water is a deep red, lustrous stone, admired everywhere, and especially in the East. It is found chiefly in the kingdom of Ava, whose sovereign retains the finest rubies as his private property. Cut in a flat table, bordered with small facets, and surrounded by brilliants, it is an exceedingly handsome stone, and a very precious one, nearly approaching the diamond in value. A ruby of one carat is worth about \$150 in New York, and a ruby of over three carats is actually more valuable than a diamond of equal weight, because much rarer. Rubies are very well imitated by pastes, and not unfrequently very fine garnets are palmed off by unscrupulous dealers as genuine rubies, although the fraud can be readily detected, as garnet is a much softer stone, and has different optical properties.

The sapphire differs from the ruby only in its blue color. Occurring more abundantly, and larger, it is of less value, and while a sapphire of one carat is worth \$100, one of larger size would command a far less price in proportion than a large diamond. Asteriated sapphires and rubies, which when cut show a six-pointed star, have a high value as fancy stones. The sapphire was supposed to have a cooling influence on the wearer, and has long been the badge of the episcopal office. Sapphires come mostly from Ceylon; but inferior rubies and sapphires, of a pale hue and less transparent, are found in this country, especially in North Carolina and Georgia. They are, however, valueless as gems.

VISITING AN ENTOMOLOGIST.

OVER EIGHT THOUSAND SPECIES OF BEETLES IN ONE ROOM.

While visiting Ridgewood, N. J., not long since, the writer was introduced to Mr. Andrew S. Fuller. He is a pleasant-faced gentleman, with a grizzled beard and iron-gray hair, and occupies a small office on his farm but a few steps from his residence. Mr. Fuller is a well known agricultural writer and a distinguished entomologist. He has spent many years collecting bugs and studying their habits and characteristics. His office is neatly furnished. A coal stove and plain writing-table occupy the centre of the room, and a fine scientific library is ranged against the wall. Cases of bugs in sliding drawers stare the visitor in the face, and strange sounds are frequently heard from old logs and decaying pieces of wood piled in the room. Each is worked by the grub of some bug or beetle whose habits are the particular study of Mr. Fuller. There are in the room 125 cases of beetles alone, containing 7,450 species up to 1873. How many have been added to his collection since that time is not known, but he thinks several hundred. He has secured many snout beetles mentioned in the work of Le Conte and Horn, recently published.

In answer to various questions, Mr. Fuller said that no collection includes all the known species of beetles in the United States. About 10,000 kinds have been classified and described, and additions are constantly being made. There are probably not less than 25,000 species in the country, 15,000 of which are yet to be discovered.

"Do you confine yourself to the collection of beetles alone?" asked the writer.

"Most bug collectors," he answered, "study during life but one order or family. I am especially interested in the beetle. Taking beetles, moths, but-

each plant. This would give us 500,000 kinds of insects, and there are probably many more. Taking this view of the matter, it is no wonder that individual bug collectors give their time to the study of but one order or family."



THE ENTOMOLOGIST AT WORK AMONG HIS BEETLES.

terflies, bugs, flies, ants, etc., together, there must be over 100,000 different species inhabiting the United States alone. It is supposed that over 100,000 kinds of plants are scattered over the world, and five distinct species of insect prey upon

"One family of beetles," continued Mr. Fuller, "work exclusively at trees. Their grubs live and bore into the timber. There, for instance, are the long-horned beetles, 551 species being already named and described in the United States. Every farmer knows

the apple-tree borer, which is one of the long-horned family."

Here Mr. Fuller drew out a case and showed the reporter the long-horned crew. They stood impaled on slender needles by platoons, of all sizes and colors, from one-eighth of an inch to three inches long. They were all slender fellows, with shimmering clothes. The antennæ of many were curled over their backs like the horns of an ibex, while in other cases they were five times the length of the insects themselves. Among the lot the entomologist pointed out what he called the tickler beetle. It is often found in the Eastern States, breeding in pine-trees. The male may be seen standing on the bark of a tree or an old log. It will throw forward its antennæ and make a ticking sound, supposed to be a call-note to its mate, for the female will invariably appear, and the couple fly away together.

"The destructiveness of beetles," said Mr. Fuller, "may be imagined when I tell you that some of their grubs are as large as a man's finger, and live in the trunk of a tree from ten to twenty years before changing their shape and becoming beetles. All these years they are constantly feeding. They go boring through the trees like augers, and leave trails as crooked and devious as the path of a ship in a head wind. I have known grubs to bore over fifty feet in oak trees before they were turned into beetles. But these grubs have their enemies. The little woodpecker eats the eggs which he finds on the bark of the tree, and nips the grub as he is working his way in. As the forests are cut down and the country becomes more cultivated, the number of grubs increases, for the woodpecker leaves us. He will not visit isolated groves, either because they are so small he don't consider the grain worth reaping, or because he is shot or frightened away by sportsmen, whose numbers seem to increase with the decrease of game."

"One might suppose," continued the buggist, "when a grub is encased in two inches of solid green, hard maple, that he is pretty well protected from the outside world. But it is not so, for here we have a fly," drawing out one of his cases, "that finds and destroys him."

There were rows of flies in the case. The wings were transparent, the legs and antennæ yellow, the waist wasp-like, and a tail like a horse-hair, five inches long, ran from the end of the insect. Through this fine hair she deposits her eggs.

"This," said the savan, "is the ichneumon fly. It has been a great mystery to know how this fly can tell the exact spot in the tree to find the grub. She undoubtedly does it by listening, for a man, placing his ear to the tree, can hear the grub boring."

Here Mr. Fuller picked up part of an old limb and held it to the writer's ear. A faint noise was heard, as though some mite was running a grist-mill.

"It is a grub," explained the bug collector, "hard at work. Well, the ichneumon fly, by listening on the tree, knows where to find her grub. The next thing is to get to it. She places her eggs through this fine horse hair or tail. Here is a microscope. Look at the end of this egg-placer and you will see a two-bladed back saw. See it?" The writer nodded. "With this saw," said the scientist, "the fly cuts through the solid wood to the grub. But when she reaches him she does not destroy him. She simply drops an egg upon his back, the egg hatches another grub, and the second grub bores into the first one, feeds on him, destroying him, and enlarges, until in time, after various changes, it emerges from the tree another ichneumon fly. It cannot propagate its species without finding this grub."

Here Mr. Fuller replaced his case of beetles, and after lighting a cigar continued: "One digression. I want to show you, in this fly, how clear nature does her work. Take the maple-tree. Of all the seeds that fall from it to the ground one in a thousand grows. Of all the seedlings, through crowding and accidents, one in a thousand lives and becomes a tree. But if this one tree had no enemy, the maples would crowd out all other vegetation. So, along comes the borer and

keeps the trees in check, and through fear that the borer might overdo the work, Nature sends along the ichneumon fly and keeps the borer in check."

"The fly has killed the grub," continued the speaker, "but the grub has bored a hole which lets in the air and moisture, and hastens the decay of the tree. He has cut off many of the vessels that carry up the sap, for the borers that escape the fly do not go out the way they came in. He cannot pass out the hole through which he entered, for he has increased in size fifty times, and, more than that, the hole has grown over long before his maturity. On reaching full growth he takes a direct course outward, stopping at the bark, for should he go through and poke out his head some woodpecker might come along and take it off. So the grub rests under the bark, surrounding himself with a ring of excrement. There he undergoes his last transformation and becomes a beetle. Then he gnaws a hole through the bark and escapes to the open air."

"Let us watch the maple tree," said Mr. Fuller. "The attacks of these insects, together with old age, finally tell on it. Scores of insects work upon its leaves, others feed upon the little twigs, and an almost endless line of ants and bugs train up and down its trunk. It loses all vitality, and dies. Then the wind blows the old tree down. It scarcely touches the ground before it is attacked by an entirely different class of insects. They have no tooth for live timber, but only for that which is dying or dead. Some bore straight into the solid wood. Others go under the bark and remain between the bark and the surface of the wood. Their peculiar office seems to be to separate the bark from the wood, and for this purpose they are made very thin, some of them not over the hundredth part of an inch in thickness. The holes and looseness of the bark allow the water to get in and hasten the decay of the log. The wood becomes soft and mellow, like a well-ripened apple. Then the stag-horned beetles appear, the females dropping their eggs where the grubs will find suitable food. The snapping bug also takes a hand at the old log and revels in its rottenness."

"The last feeder of all," said Mr. Fuller, "is a great lazy, shining, black beetle with corrugated wing covers, a short-jointed antennæ frayed like the end of a thread, a good-sized mouth, a horn on his nose like that of a rhinoceros reversed. He is the laziest of the beetles. When picking up an old log I have seen dozens drop to the ground, but not one ever made an attempt to escape. When this beetle has finished his work the maple has gone through its last change. The old log is thoroughly rotten and becomes pure vegetable mold."

Here the reporter was about to leave when the entomologist said: "I have given you the little I know concerning one beetle, but to-day there is not one hundred of our North American insects whose true history is well known. There is room for a thousand active young men to distinguish themselves in this direction. The pursuit is most fascinating, and no man who has once entered it will ever wish to turn back. Just to give you an idea. One man visited Florida during the winter and brought back over 1,500 new species of bugs. Another man broke down the bug market in one specialty. He found under a dead palmetto fan hundreds of bugs that were previously rated at \$75 apiece."

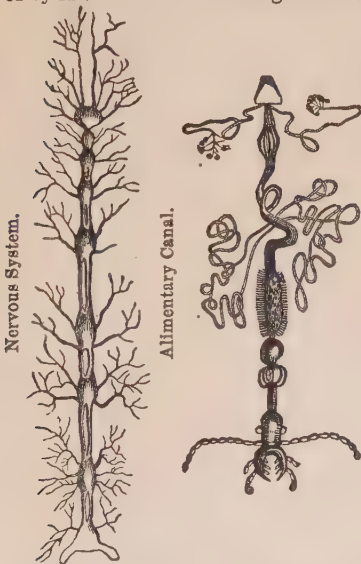
A hunter near Denver, Col., turned over an old buffalo hide and found a double handful of another species worth \$15 each. The discoverer knew their value, and sold them at the highest prices, but after that their value was gone, for every collector was supplied.

The entomologist, whether in all the buoyancy and ardor of youth, or falling into the "sere and yellow leaf," possesses a peculiar advantage over those engaged in the examination of other natural objects. The specimens of the geologist or mineralogist are frequently of considerable bulk and weight, and require a corresponding space for scientific arrangement. The ornithologist may secure for his herons, swans and falcons, their respective plumage and attitudes, but he must do so at considerable cost, and requires a range of large cases for their display and classification. The loveliest rose that ever unfolded her petals to the skies of June, or the sweetest violet that ever yielded her fragrance to the breath of April, are alike left of their beauty when transferred to the *herbarium siccus* of the botanist. But the colors of insects are not evanescent

and fugitive, but fixed and durable, surviving their subject and adorning it as much after death as before, and a single drawer, of moderate dimensions, will hold hundreds of them, in all the richness of their hues and the variety of their forms.

The internal structure of insects is no less remarkable than the external. Good air is as indispensable to them as it is to other creatures; but they do not breathe by the mouth, and are not provided with lungs. The internal organs by which the air received is distributed are very wonderful; and the structure of the alimentary canal in insects is wonderfully diversified. Not only are differences discoverable as we pass from family to family, and from species to species, but the same individual will often be found to have a canal quite different, according as it is examined in its grub or perfect state. The variations exactly accord with the temporary or constant mode of life of the creatures in whom they appear. "Thus," says Cuvier, "the voracious larvæ, 'or grubs' of the Scarabæi (beetle) and butterflies have intestines ten times as large as the winged and sober insects, to which they give birth."

In two beetles which have been examined a remarkable difference has been observed. In the one there is no crop or gizzard, but the stomach is fringed on each side, and there are three bile-vessels; while in the other the gullet is dilated into a crop, which includes a gizzard, in which the divine wisdom is singularly apparent; for though so minute as scarcely to exceed a large pin's head in size, it is stated to be provided internally with more than four hundred pair of teeth, moved by a far greater number of muscles. The object of this extraordinary structure is the reducing to powder of the timber which this beetle has to perforate and probably devour, for it belongs to the family spoken of by Mr. Fuller as "working exclusively at trees."



Insects, considering their size, are very strong. Some leap two hundred times their own length; and Bradley asserts that he has seen a stag beetle carry a wand half a yard long and half an inch thick, and fly with it several yards. Others can resist great pressure in a wonderful degree. One, for instance, an inhabitant of muddy pools, has been occasionally taken up with the water used in paper-making, and, according to Linnaeus, has resisted, without injury, the immense pressure given to surrounding pulp.

"It is fortunate," say Messrs. Kirby and Spence, "that animals of a larger size, especially noxious ones, have not been endowed with a muscular power proportionable to that of insects. A cockchafer, if respect were had to their size, would be as strong as a horse; and if the elephant, as Linnaeus has observed, were strong in proportion to the stag-beetle, it would be able to pull up rocks by the roots, and level mountains. But the Creator, in these little creatures, has manifested his almighty power in showing what he could have done had he so willed; and his goodness in not creating the higher animals endowed with power and velocity upon the same scale with that of insects, which would probably have caused the early desolation of the world which he has made."

Some of our American beetles are remarkable for the fine phosphoric light which is observed to emanate from them during the evening twilight, and when the evening

shadows of night have fallen upon the forests. One of them was transported to Paris under the form of a chrysalis or larva, and having made its escape into the streets after the assumption of its perfect state, it greatly astonished the inhabitants of the Faubourg St. Antoine.

The Fire-fly is an insect of the beetle tribe (*Elater noctilucus*), about an inch in length and one-third in breadth; it gives out its principal light from two transparent eye-like tubercles placed upon the thorax; but there are also two luminous patches concealed under the elytra, which are not visible except when the insect is flying, at which time it appears adorned with four brilliant gems of the most beautiful golden blue lustre; in fact the whole body is full of light, which shines out between the abdominal segments when stretched. We are told that the Indians used to employ these living lamps, which they called *cucujj*, instead of candles, in their evening household occupations. In traveling at night they used to tie one to each great toe, and in fishing and hunting they required no other flambeau.

The sacred beetle of the Egyptians belongs to the genus (*Scarabæidae*). It is of about an inch long, or rather more, and of a black color. The ancient Egyptians held that it was sacred to the sun; and regarded it as typical of that luminary, which is the source of light, heat, and all abundance, and looked upon it as the emblem of fertility in general. Representations of it are frequent among their hieroglyphics, and sculptured images of it are found on their rings, necklaces and other ornaments; it was even embalmed with them after death.

A laborious task is performed by the insect called the burying beetle. M. Gleditsch, a foreign naturalist, had often remarked that dead moles, when laid upon the ground, and especially if upon loose earth, were almost sure to disappear in the course of two or three days, and often in twelve hours. To ascertain the cause, he placed a mole on one of the beds of his garden. It had disappeared on the third morning; and on digging where it had been laid, he found it buried to the depth of three inches, and under it four beetles, which seemed to be the agents in this singular interment. Not perceiving anything particular in the mole he buried it again; and on examining it at the end of six days, he found it swarming with maggots, apparently the offspring of the beetles, which he naturally concluded had buried the carcass for food for their future young. To place this beyond doubt, he continued his experiment, and in fifty days four beetles had buried, in a small space of earth, four frogs, three small birds, two fishes, one mole, two grasshoppers, the entrails of a fish, and two morsels of the lungs of an ox, all evidently intended for the same purpose.

When in small numbers the larvæ of beetles may do no great injury; but where they abound, as they often do, by interrupting the course of descending sap, and admitting wet between the bark and wood, decay speedily ensues, and the tree perishes. Almost every kind of tree is liable to the assaults of one or more species.

Expressly designed for progression through the air, insects compose the most extensive class of the whole animal kingdom. This part of animated nature, like every other, is eminently calculated to direct the mind to the great Creator.

"To trace in Nature's most minute design,
The signature and stamp of power divine;
Contrivance intricate expressed with ease,
Where unassisted sight no beauty sees;
The shapely limb, and lubricated joint,
Within the small dimensions of a point;
Muscle and nerve miraculously spun,
His mighty work who speaks, and it is done!"

After manifold trials, a composition of glass has been discovered which may be made at any time into curled or frizzled yarn. The frizzled threads surpass in fineness not only the finest cotton, but even a single cocoon thread, and they appear at the same time almost as soft and elastic as silk lint. The woven glass flock wool has recently been used as a substitute for ordinary wool wrappings for patients suffering from gout, and its use for this purpose has been successful. Chemists and apothecaries have found it useful in filtering. The smooth threads are now woven into textile fabrics, which are made into cushions, carpets, tablecloths, shawls, neckties, cuffs, collars and other garments.

BALLOONS AND AERIAL NAVIGATION.

Few subjects furnish a more interesting field of speculation than Aerial Navigation. The region of the air was given to the birds, the empire of the sea to fishes, and the realms of the landed world to quadrupeds. To man alone was given the dominion over all. The land is his native place of abode, but his inventive skill has enabled him to traverse the mighty ocean, and why should not his ingenuity enable him to soar among the lofty aerial regions of the birds? So reasoned men long years ago, but the world was not ripe for the invention, and nothing was accomplished in that line until about a hundred years ago.

The first public balloon ascension took place at Annonay, in France, June 5th, 1783. It was a beautiful day, and a large concourse of people were present. At the appointed hour the inventors, Messrs. Robert and Joseph Montgolfier, came forward and kindled a fire underneath. Some bundles of straw were now chopped, thrown upon the flames and dampened, when a dense, hot smoke ascended through the mouth of the suspended linen balloon. It became rapidly inflated, when it measured about 40 feet in diameter, and required the united strength of eight men to hold it down. At a signal it was let go, when it mounted a mile in the air, appearing as a conspicuous object for miles around. It fell after some time, but a short distance from its place of ascension.

The first public ascension created a sensation, and induced the inventors to try again. A new balloon was accordingly constructed of silk, in a superior manner, varnished, and inflated with hydrogen gas. When everything was ready it was conveyed by torch-light to the Champ de Mars. It was the 27th of August, 1783. Thousands of spectators thronged the streets and balconies, and covered the house tops of Paris. They were impatient and eager, for they knew it was to be the grandest balloon ascension the world at that time had ever witnessed. The huge silken globe was fully inflated, and it rolled and plunged from side to side, tugging at its fastenings and struggling like a caged lion to escape. Suddenly the discharge of a cannon announced that the time had come for setting the struggling invention free. The main rope that held it down parted with a shrill twang, and the balloon shot skyward like an arrow. It remained in the air for about three-quarters of an hour, when it descended near a small village about 15 miles away. Here, for a while, it bounded about upon the ground, the fetid gas escaping with an angry, hissing sound. The inhabitants, who had never seen anything of the kind, were terrified and amazed. Two of the more pious monks declared it a horrible demon from some unknown world. Religious exercises were held, and prayers offered. No one dared approach the terrible monster. At length all of the gas had escaped; the hissing sound died away, it ceased its motions and was at rest. The people now plucked up their courage, and arming themselves with clubs, pikes and forks, rushed upon it with wild unearthly yells and tore it to shreds.

A short time afterwards another balloon was constructed, 75 feet in height by 43 in width. A basket was attached, into which was placed a sheep, a duck, and a cock. It ascended from the palace yard at Versailles, and in a short time descended to the ground about two miles distant. The animals were perfectly uninjured, and the sheep was found near its landing place, cropping the short grass as quietly and unconcernedly as though nothing had occurred.

The Montgolfiers now constructed another balloon of very superior strength, and the young naturalist, Pilatre de Rozier, boldly offered to undertake an aerial voyage. On the 21st of November, 1783, he entered the car in company with the Marquis d'Arlandes, and the fastenings were cast loose. As the huge aerial ship, 70 feet in height and 46 in diameter, arose with the two daring aeronauts, a silence like death reigned among the thousands of Parisian spectators. Up, up, up they went, until the two men looked like little children in size; and now as they waved their handkerchiefs a wild burst of applause went up from the assembled multitude below. Higher, still higher; and the brave navigators could scarcely be discerned by the naked eye. They reached a height of 3,000 feet; and after a voyage of six miles descended safely, after having been in the air about 25 minutes.

The whole French world viewed this great exploit with astonishment. All Paris was excited over the subject of aerial navigation. The enthusiast dreamed of celestial voyages, where he might look down upon the earth and behold it as a vast map spread before him—where he might behold at a glance the plans of cities and the outlines of nations. In his imagination he seemed to see the time near at hand when all the business travel of life would be carried on through the regions of the clouds. The gates of the Infinite seemed to be swinging back before the steady march of progressive science, and the imagination seemed to whisper that we were not to be chained longer upon this earth. The moon might be visited, the sun, the starry heavens! Another balloon was speedily constructed, superior to the other, and on the 1st of December, 1783, the ascent was made in the presence of three-fourths of the inhabitants of Paris. Messrs. Charles and Robert Montgolfier were the aeronauts. They ascended rapidly to the height of 2,000 feet, at which elevation they floated for about two hours, when they descended 27 miles from the place of ascent. But they

were not to stop here. As Robert stepped from the car the balloon bounded upward again, carrying Charles with it, to the height of 9,000 feet. The sun, which had set to the world below, now became visible, and he once more beheld its parting rays as it silently sank below the horizon. The world paled from sight; below all was darkness. The pale moon arose in the east like a queen of night, and shining upon the long lines of fog and ever-varying strata of ascending vapor, gave them a feeble, silvery whiteness. The intrepid aeronaut drank in the lovely moonlight scene below him with rapturous delight; but night had fairly set in and he dared not continue longer. He threw open the valve, and alighted in a field, only three miles from Paris.

In September, 1784, the Duke of Orleans, accompanied by the Montgolfier Brothers, ascended in a new and improved balloon, with oars and a rudder. When they had reached an altitude of 1,400 feet, they noticed the dark and threatening aspect of the horizon, while the low muttering thunder-peals portended the coming storm. Great masses of inky clouds came rolling up, and the wind commenced to blow. Suddenly the temperature changed, and they began rapidly to descend. Throwing their ballast overboard they shot upward with amazing swiftness. Everything now seemed to be in wild commotion. All at once they entered the sombre storm-cloud, and the darkness of night seemed to envelop them. Occasionally the blinding glare of the vivid lightning would reveal the horror-stricken faces of the voyagers to each other, while the thunder's crash seemed almost sufficient to rend the heavens asunder. Suddenly they dashed upward through the upper surface of the angry cloud, and the sun in all its splendor shone full upon them. Below them rolled the storm king in majesty and grandeur, its fleecy upper surface rendered bright and dazzling by the brilliant rays of the sun. They were still ascending rapidly; and they would soon arrive at a point where the balloon would burst. Something must be done. The Duke drew his sword and plunged it into the great globular receptacle. The gas commenced to escape through the rent, and the balloon began to descend. They reached the ground in safety; though they came very near falling into a lake. They had been five hours in their aerial voyage.

The first balloon ascension in England was made by Count Zambecari, on the 25th of November, 1783. The first English aerial voyage occurred on the 21st of September, 1784. In January, 1785, Blanchard and Jefferies undertook to cross the British Channel. When about half way over the balloon began to descend. They threw all of their ballast overboard, with the hope that it would rise, but it descended still. It neared the surface of the water, and the aeronauts became alarmed. To save themselves from a watery grave they threw overboard their anchors, ropes, provisions, books and instruments; and as a last resort they stripped off their clothing and dropped it into the sea. They now lashed their bodies to the car and prepared to meet their fate. But they were not doomed to such a death. All at once the balloon arose; and struggling on toward the French coast, landed in the neighborhood of Calais.

Pilatre de Rozier was the first to attempt a passage from the French shores. He ascended on the 15th of June, 1785. Adverse winds worked against him. For some time he remained in the air in sight of Boulogne; and then the balloon caught fire. It is needless to say that his body, which fell three-quarters of a mile, was found where it struck, a lifeless, shapeless mass. In 1785 Major Money met with a serious accident. By the bursting of his balloon he was precipitated into the German Ocean. For five hours he clung to the wreck, buffeted with the waves and struggling between life and death, when a passing vessel picked him up.

One of the most adventurous balloon voyages on record is that of M. Testu, the French aeronaut. This remarkable ascension was made at Paris, at 4 o'clock on the 18th of June, 1786, and lasted 12 hours. The balloon was constructed in a peculiar manner, with wings and steering appendages, and as the aeronaut entered the car he felt sanguine of success. He soon reached an altitude of 3,000 feet, and fearing his balloon would burst he was obliged to descend; when he found himself in a corn field on the Montmorenci plains. An immense crowd collected about the spot, and the exasperated proprietor in an angry tone demanded pay for the damage done to his crop. M. Testu offered no resistance, telling them he had lost his wings, and as escape was impossible he was at their mercy. The crowd now seized the ropes, and with clamorous shouts of triumph set out for the village. But the aerial voyager was not to be captured thus. He had noticed that the balloon had acquired considerable buoyancy, and now reaching over the edge of the car he cut the ropes, and immediately shot skyward, leaving the disappointed peasants overwhelmed with astonishment. He soon reached a great height, where it was so cold that particles of ice filled the air around him. Just before night set in he heard the blast of a horn, and saw below him a party of returning huntsmen. Throwing open the valve he descended, and threw off his cumbersome and useless wings. Again he ascended; this time enshrouded in pitchy darkness. He passed through a mass of electric matter and entered the dark rolling mass of angry clouds that portended the coming storm. The lightning flashed around him in every direction, and the roar of the deep toned thunder was terrific. A shower of sleet and snow came dashing in his face. The gilded flag that he had on board emitted sparks of electric fire. Suddenly there was a blinding glare of lightning that almost seemed

to set the whole heavens ablaze. The flag was torn in pieces by the bolt, and the crash was appalling. He continued to move on, he knew not whither. At length the dark storm-cloud rolled away, and the bright stars appeared like glittering diamonds in the clear arch overhead. The morning dawned, the sun arose; and then the daring voyager descended to the ground unharmed, and 70 miles from Paris.

Balloon ascensions now became common; and from that time until the present thousands of aerial voyages have been recorded. On the 18th of October, 1863, M. Nadar, accompanied by eight passengers, ascended from the Champ de Mars, Paris, in a balloon 74 feet in diameter, the car of which was a two story house, weighing, when full, over three tons. It was 45 minutes past five in the afternoon when they left Paris, and at nine o'clock the next morning they landed between Bremen and Hanover. This huge balloon when inflated contained over 200,000 cubic feet of gas.

On the 31st of August, 1874, M. Durnof, accompanied by his wife, ascended from Calais, France. It was seven o'clock in the evening when they arose, and they were soon lost to view by the gloom of night. A strong wind blew them directly out over the North Sea. All night long they journeyed through the darkness; and when the morning dawned the aerial voyagers beheld an apparently boundless watery waste below them. Somewhat appearing, M. Durnof attempted to descend. The angry waves caught the car and almost buried it beneath a shower of foamy spray. Madame Durnof fainted, and her husband was obliged to sustain her in his arms and struggle and buffet with the angry sea. It was a terrible hour; but the vessels were coming to his relief. The sailors seized the trailing rope and drew the balloon on board, and the lives of the adventurous aeronauts were saved.

La Mountain is a name well known all over America. He was, perhaps, the greatest aerial navigator in the world. On the 1st of July, 1859, in company with Messrs Wise, Hyde and Gager, he accomplished one of the most noted voyages on record. They ascended from St. Louis, Missouri, and in a little less than twenty hours they landed in Henderson, Jefferson Co., N. Y., having travelled 1,150 miles.

In September, 1859, La Mountain, in company with Mr. John A. Haddock, ascended from Watertown, N. Y. They rose very nearly perpendicular until they had reached an altitude of about 3,000 feet, when they were struck by a strong north-east current, which drove them along at the rate of a mile in two minutes, rising as they went. When they had reached a height of about 10,500 feet they were caught by another current, and they sped rapidly away to the eastward. They were now in the region of the clouds. The sun went down, and the world below was bathed in the darkness of night. They could direct their course no longer. They knew not whither they were going. They were lost in mid-air. Ascending through the damp chilling vapor of the clouds, they beheld the clear blue sky studded with twinkling stars above them; and for hours they floated upon the upper surface of the storm cloud like a boat upon the water. At length they threw open the valve and descended into the darkness below. Several times they attempted to land, but as often they found themselves over a thick forest. At length the balloon caught in the top of a spruce tree. Making it more secure by means of a rope, the weary men threw themselves down in the car and were soon sound asleep. They were awakened from their slumbers by the pattering of falling rain upon the leaves around them. The morning dawned with gloom and storm; and as far as the eye could reach stretched one unbroken sea of tree tops. A terrible fact was revealed; they were in the depths of the forest wilderness of Upper Canada. Abandoning their balloon, they set off through the woods. Starvation at length stared them in the face, and some frogs saved their lives. After an adventurous journey, they at last reached the land of civilization.

But the bold aeronaut could not rest. On the 4th of July, 1873, he made his last ascension, in the presence of an immense crowd of spectators. The ascent was glorious, and ere long he appeared almost like a speck playing among the fleecy clouds. Occasionally he would be hid from sight, and then he would reappear between the interstices. Suddenly the ring that encircled the balloon was broken. The balloon escaped, and La Mountain descended with the useless car. Down, down he came, rolling and tumbling, gathering force and swiftness, until with the rush of a whirlwind his body struck in a field, before the gaze of the assembled thousands. A deep indentation was made in the earth where he struck, and some of his bones were crushed to powder. His body was almost reduced to a mass of jelly, and his jaw-bone was hurled some distance away, where it was picked up bathed in blood. So perished La Mountain, the famous aeronaut.

The fate of Donaldson, who was lost in Lake Michigan last summer, is fresh in the mind of the reader.

Among the highest ascents ever made, may be reckoned that of Guy Lussac, in 1804. He ascended to the height of 23,000 feet, and the thermometer, which was 31 deg. at the surface of the earth, fell at his highest altitude to 9 deg. below zero. His pulse rose from 66 to 120, and the sky, in the rare atmosphere, appeared dark—almost black, while the silence was fearful.

Aerial navigation has thus far been unsuccessful. It has not advanced. It remains as it was ninety years ago. So did the

steam engine stand until a Watt and a Stephenson applied their minds to the work. A Watt or a Stephenson will yet apply their minds to aerial navigation, and they will startle the world with their discoveries. You and I, dear reader, may never see the day, but the time will come when the air will be navigated. The step that has been gained will be taken up by future minds, and they will carry it through to completion. Depend upon it: science moves not backward.

THE TELESCOPE AND MICROSCOPE.

There is nothing more elevating and ennobling than the contemplation of Nature. Here the thinking mind can always find food for reflection. Here the searcher after truth and knowledge finds abundant material for meditation; a book for study, bearing the impress of the Almighty hand. He beholds the kingly elephant stalking through the tangled forest or the intricate jungle of his own native land; the mighty whale of the Polar Seas coursing and sporting along the briny deep; the golden and scarlet plumed birds fluttering among the branches and green leaves of a tropical forest, warbling forth their evening songs; the reptile crawling among the leaves and grass; myriads of tiny insects humming and sporting in the air; and as he observes how everything is carried on with order and harmony and beauty, each in its appointed time and sphere, his thoughts wander from the beautiful scenes of Nature up to Nature's God.

With the unassisted eye we can behold but a very small portion of the great field of Nature. We can observe a few of the more prominent terrestrial or earthly wonders, and a few bright stars, like mere specks of light in the concave of heaven. But genius and a thinking and reasoning brain, given to man and directed by the mighty power of inspiration, has opened the doors of light and truth, and enabled him to look upon worlds more than a thousand millions of miles away.

By the aid of the Telescope the bright twinkling stars of night are shown to be worlds and suns, some of which are more than a thousand times the size of this earth. The sight and the mind darts instantly forth and wanders among the fixed stars or distant suns so very remote, that light, which travels at the rate of 11,000,000 miles in a minute, would require thousands of years to pass from them to us. Among them all we realize that the world we inhabit is but as a mote of dust or a grain of sand upon the sea-shore.

With the invention of this important instrument a new impulse was given to astronomy. The old Ptolemaic theory fell to the ground; and the truths of Copernicus, and Kepler and Tycho Brahe, and Galileo were demonstrated before a hitherto unbelieving world. The moon was seen with its rugged mountains and towering precipices, coursing round the earth; Saturn with its brilliant rings, Jupiter with its belts and resplendent moons, and Venus, the queen of the stars, traveling round the sun. The fiery comet was seen to dash in among them, and quickly pass away again on its appointed course, paling from sight in the dim and unknown distance. Countless millions of worlds appeared in the blue concave overhead. And yet this was but a fragment of Nature. The sublime scenery of the heavens impressed the mind of man with a feeling of wonder, astonishment and awe. He viewed the mighty power of God, and hesitated not to exclaim, "An unlearned astronomer must be mad!"

About the beginning of the seventeenth century, two children of a spectacle-maker were one day playing in their father's workshop, at Middleburgh, in Holland. Picking up two spectacle glasses and placing one before the other at a little distance apart, they observed by looking through them both, that objects appeared inverted, drawn near by, and greatly increased in size. Their father noticed their simple experiment with interest, and fixing two movable glasses on a strip of board, prepared a rude instrument for himself. People flocked in and amused themselves by viewing distant objects through this new contrivance. Their curiosity was awakened; and this rude instrument furnished the ideas and paved the way for the invention of the telescope by Galileo in 1609.

The first instrument of Galileo's was made by enclosing in a tube two spectacle glasses, plain upon one side, while upon the other one was spherically convex and the other concave. Applying his eye to the convex glass he beheld objects appearing three times nearer and nine times larger than to the unassisted eye. Shortly afterwards he made another, which gave objects the appearance of being sixty times larger; and ultimately he constructed one which caused objects to appear thirty times nearer and a thousand times larger.

His discoveries in the heavens spread rapidly, and caused intense excitement throughout all Italy. Copernicus had been denounced as a teacher of false doctrine. Galileo proved his theory correct. In other words, he declared that the sun was the center of the solar system; that the planets shone only by the reflected light of the sun; and that the world turned on its axis. This brought him in direct conflict with the teachings of the learned men of the age, who defended the Ptolemaic doctrine, asserting that the earth was the center of the universe, around which the sun, moon, and stars daily revolved. They hesitated not in declaring Galileo a false and deluded teacher—

a lying heretic. They would not renounce their teachings for this one scientific reformer, and they caused him to be arrested and brought before the Inquisition, that terrible tribunal where, in the name of justice and even holy religion, men were placed upon the cruel rack or engines of torture and inhumanly torn and mangled and murdered. Galileo bore his part well; but he was an old man and he could not die thus. Kneeling upon the crucifix, with one hand on the Bible, he was forced to renounce all. But,

"Truth crushed to earth will rise again,"

and as he arose he could not help whispering to one of his attendants, *"The earth does move, for all that!"*

Bigotry and ignorance could not quench the fires of truth and true discovery. The worthy senators met in Venice, and Galileo was invited to bring his instrument and prove his theories there. He took his best telescope and erected it upon the summit of the tower of St. Mark. It was a cloudless night. Jupiter, Venus, and the crescent moon shone brilliantly in the clear blue sky. The old astronomer was filled with joy. It was just such a night as he had anxiously hoped and prayed for. The senators gathered around him, and one after another gazed upon the sublime scenery of the heavens. Taking advantage of the situation, he stepped forward and delivered a long lecture; in plain language setting forth the truths of his long cherished theory. With their own eyes they had beheld the wonders the telescope revealed, and they listened to the words of the great astronomer with attention. That night carried conviction to the minds of the leading men of Venice. That night established the truth of the Copernican theory. That night was fatal to the system of the ancient schools.

Astronomy now became one of the leading branches of science. Larger and better instruments were constructed, and the builders were rewarded by making new discoveries. No such planet as Uranus was known to exist, until in 1781 it was discovered by the aid of Herschel's powerful telescope; and yet it is a planet of our solar system nearly ninety times the size of our earth. What new worlds await the discovery of the near future we know not; though we have reason to believe they will be many, for the study of true astronomy as a science has only just commenced.

The celebrated telescope at Parsonstown, Ireland, erected by Lord Rosse, is one of the largest instruments ever constructed. The grand speculum or reflector is six feet in diameter and weighs four tons. A foundry was built expressly for this great casting. The magnificent tube is seven feet in diameter and fifty-six in length. It is hung between two brick walls seventy-two feet long and fifty in height, and is easily moved in any direction by means of a system of ropes and pulleys. The weight of the speculum and tube, including the bed piece, is about fifteen tons. By means of this king of astronomical telescopes, objects may be discerned on the moon as small as 300 feet cube. Its cost was \$60,000.

The "Grand Refractor" at Cambridge, near Boston, is a noble instrument weighing about three tons, so nicely balanced that it can be directed towards any quarter of the heavens by the finger of a child. Its cost was \$19,842. The tube of the Great Refracting Telescope of the Cincinnati Observatory, as well as that at Cambridge, was made in Germany. It is seventeen feet in length, and cost \$9,437.

The Microscope is no less wonderful. The telescope shows us a host of mighty worlds, so numerous that the eye can scarcely number them. The microscope reveals a world of animated life in a single drop of water. It has shown man more wonders in the terrestrial field of Nature than any other instrument ever constructed. It has opened a new world to him; and caused him to realize the fact that the world he inhabits and the air he breathes is absolutely crowded with life. That the fly which he crushes beneath his foot is in proportion as much larger than the smallest monad, as the elephant is larger than the fly. That life lives only through death. That for every being born another must perish. That at every fleeting breath we draw ten thousand creatures die. What is life itself? How did it all originate? He who guides and directs the unnumbered millions of planetary worlds and rules the unbounded universe alone can tell.

If bits of straw, old half decayed leaves, stalks of plants, etc., be placed in a jar, and the vessel filled with the purest water and left open to the air, it will soon be found teeming with life. They may not be readily seen with the naked eye alone, but the microscope will reveal them, so exceedingly numerous that a single drop has been thought to contain more living creatures than there is human inhabitants on the globe.

Would you study the beauties of Nature—think not to be successful with the unassisted eye alone. You have many times caught butterflies, and you have doubtless noticed the yellow dust-like powder upon their frail wings, a portion of which was quite likely left upon your fingers after you had let the tiny creature go; but did you dream that that apparently yellow dust was feathers, as truly and perfectly formed as those on the goose or hen? The microscope reveals the fact. Did you dream that the frail spiders' web that you swept from your path was composed of 4,000 threads? The microscope will convince you. By its aid the physician detects the adulteration of the drugs he buys, the exact condition of the blood in health and disease, counts 3,500 pores on a single square inch of the palm of the hand, views the body of man covered all over with scales like a fish, and sees even the marrow of a human hair. Snow flakes are seen to consist of beautifully formed crystals, nicely ar-

ranged in many different forms. By its aid the study of vegetation is made doubly interesting. The cells, tissues, and granules of which the wood is composed, are seen arranged in regular order, in accordance with Nature's laws. The wheels and running parts of a watch, when viewed through a powerful glass, appear almost like the wheels and gearing of a grist-mill. Every little rough spot is plainly shown, and the smallest defect in the work can be readily pointed out. A fine needle has almost the appearance of a crowbar; and the finely polished surface of a steel razor resembles a plowed field.

The lion, leopard and tiger are to the naked eye ferocious looking beasts. But the microscope reveals among the minute insect creation creatures which, according to their size, are a thousand fold more savage and terrible. The gnat, with its barbs and darts and sharp cutting instruments; the bee with its poison divided sting; and the barbarous spider with its deadly fangs, nails and claws, are the most formidable.

We might go on describing the appearance of the minute forms of creation until we had filled a whole number of the GROWING WORLD were it required, but it is not necessary. The observer in this department of Nature's wonders can now procure a moderate glass at very little expense, and pursue his investigations with pleasure and profit.

The microscope is said to have been invented by Jansen, about the time of the invention of the telescope; but Galileo brought it to perfection.

PRINTING.

BY JASPER T. JENNINGS.

If we look at the history of the world, we shall find that the brilliant age of civilization and enlightenment dates back only about three or four hundred years. The ancient Greeks and Romans of two thousand years ago had, it is true, made some advances in civilization and knowledge, which at that time had raised them above the nations of Christendom; but what was their knowledge when compared with the learned minds of to-day? In many things a humble school-boy of the nineteenth century would utterly confound the logic of a score of ancient expounders, and not half try.

In those days the great teachers like Plato, Socrates, and Demosthenes, taught their pupils orally, and instruction was passed from lip to lip, or written out at enormous expense. Years and centuries rolled away, and the masses remained in ignorance. Books could only be produced by writing and copying with a pen—a slow and tedious process. It required years of labor to produce a copy of the Bible, and its cost was often equal to that of a good farm. Books were, therefore, only in reach of the rich. The poor could scarcely think of their purchase.

Knowledge of the arts and sciences was confined to the few; and consequently its progress was extremely slow and backward. Occasionally there were natural scholars and shining lights in the world, as now; but they had no means of diffusing their knowledge among men. Their grand ideas and noble lectures rarely reached beyond the sound of their voices, and but few persons could be benefitted by them. Their brilliant talents and silent thoughts could not be hurried away to the four quarters of the globe by the medium of the newspaper and printed page, to illumine other minds a thousand miles away, and the years came and went, and generation succeeded generation with little apparent change.

Emperors, despots, popes and priests ruled the world for power and profit. The ignorant people who had been taught to receive their word as the only law, tamely submitted to a life of slavery. They dared not think for themselves, and they knew not their God-given rights, powers and privileges. They became willing slaves, "hewers of wood and drawers of water;" willing to work and toil their lives away to suit the wishes of the ruling power, provided they could obtain food and clothing enough to keep the soul and body together. In this way, thousands of years ago, Thebes, Babylon and Jerusalem were built. In this way the pyramids of Egypt and the stupendous works at Palmyra and Nineveh were erected. And in later years the mind and toil and gold of generations were in like manner lavished upon the churches and cathedrals of Europe.

Gradually, however, as age after age passed away, the mind of man began to struggle up from the dark mists of ignorance, and to develop itself. The masses began to look into their situation; and as they studied, thought, and reasoned, they saw that they were created equal to their masters, and that their lives were being worn away to enrich and fill the greedy coffers of the grasping and avaricious few.

At length, in 1441, John Gutenberg and Dr. Faust, of Mayence, Germany, came forward with the crowning invention of the modern world. This was the art of printing from movable types; an invention that immortalized their names as the greatest benefactors of the world ever produced. It is true the Chinese claim to have made the discovery several hundred years before, but its use was unknown among enlightened nations, and the two illustrious Germans above named were discoverers and inventors none the less, if they were not the first originators. When the type for a book was once set, hundreds and thousands of copies could be printed at very little cost. Books, pamphlets and papers now began to be disseminated among the people, and teachers sprang up on every hand. The minds

of poor laboring men were at once brought in communication with the profoundest minds on the globe; and now commenced the great struggle between truth and error. New scientific theories arose in contradiction to the teachings of those who had formerly been unquestioned. Copernicus denounced the Ptolemaic system of astronomy, and declared the sun to be the center of the solar system. Harvey announced his discovery of the circulation of the blood. Martin Luther raised his protesting voice against the Pope and the corrupted religion of the time. A mighty reformation was begun, headed by noble minds, working shoulder to shoulder at the great wheel of universal progress. Not solely a religious reformation, but a reformation in learning, in art, in science, in everything.

The old school of scientific expounders beheld the new and rapidly rising sects with alarm. In the near future they beheld their doom. The new doctrines were declared false, heretical and dangerous; and every nerve was strained for their overthrow. Copernicus, Galileo and others were arrested and hurried away to prison. Harvey was looked upon as a fool or a madman, and Luther was met with the most determined opposition. Excitement ran high, and in the darkened age of ignorance and fanaticism, imperious and arbitrary rulers established that infernal court—the Inquisition. Thumb-screws, scourges, chains, racks, and every other instrument of torture the hellish ingenuity of man could invent, filled its execution rooms; and the work carried on in the Star Chambers of this horrid tribunal was well calculated to strike terror to the heart of the strongest mind. In the name of justice, and even holy religion, men were bound upon the cruel rack, with clasps around their wrists and ankles, ropes were attached, passing over windlasses, the executioners took their places, and at a signal the doomed victim was slowly torn limb from limb. The tortures perpetrated upon the victim of the untutored savage of the American wilds was scarcely a comparison to the blood-curdling horrors perpetrated upon the victims of these inhuman monsters, who dared to call themselves men, civilized and religious. The mind sickens at the bare recital. Through the agency of the press the people were informed of the murderous proceedings carried on by their despotic rulers, and they rose in their power and might, and for a time a reign of terror ensued and the soil of Europe was drenched with blood. But,

"Truth crushed to earth will rise again."

It cannot be blotted out forever. The spread of printed matter now brought mind in contact with mind, and rending the dark veils of bigotry, ignorance, and superstition, flung open the portals to light, truth, and knowledge. The press became the great motive power of human progress. All that was known in the arts and sciences was condensed and brought before the world; and the reader or philosopher could in a short time acquaint himself with the logic of the greatest scholars that ever lived. Theories and principles that had been discovered only by lives of patient study were flung abroad on the printed page, and the work of a lifetime grasped and retained by a million minds in a single season. To these were added their own theories and speculations, and the world moved on from discovery to discovery—from darkness to light and truth.—America was discovered, the bloody Inquisition swept away, the art of navigation extended, and a thousand inventions studied out. The press became the potent power to link together mind and Nature, genius and enterprise; and the civilized world seemed to leap forward almost miraculously into a higher and nobler state of existence.

Printing was first introduced into England by William Caxton in 1474. His press was erected in Westminster Abbey, and his first work was entitled, "The Game and Play of the Chess." In 1638 Rev. Jesse Glover, an English clergyman, purchased a rude press by means of friendly contributions, and in company with Stephen Daye, an experienced printer, embarked for the New World. Mr. Glover died during the passage, but Daye, with his dissenting friends, proceeded to Cambridge, Massachusetts, where the new press was set up, and in January, 1639, an almanac and "The Freeman's Oath" made their appearance. In 1649 Daye was succeeded by Samuel Green, who was the father of nineteen children, many of which learned their father's trade. In 1704 the first newspaper published in the American colonies was issued at Boston. It was a small folio, printed in small pipe type on half a sheet, and was entitled "The Boston News-Letter." Shortly afterwards the Massachusetts Evening Post was established, followed by the Gazette, the Essex Journal, the Worcester Spy, etc.

The first publication in Pennsylvania was an almanac, issued in 1687, by William Bradford. The first newspaper was issued Dec. 22nd, 1819, and was entitled "The American Weekly Mercury." "The American Daily Advertiser," of Pennsylvania, commenced in 1784, was the first daily paper issued in America. In 1813 the Boston Daily Advertiser was commenced. The first printing press brought into New Jersey was in 1751, and the first newspaper published in the State was the New Jersey Gazette, issued at Burlington, Dec. 5th, 1777. The sheet was only eight by twelve inches in size, and the price was twenty shillings a year. The first newspaper published in Vermont was the "Green Mountain Newsboy," started by Spooner & Green, at Westminster, in 1781. In January, 1785, Titcomb & Wait commenced the publication of the Falmouth Gazette, the first newspaper in Maine. The "Wilmington Courant" was started by James Adams in 1761. It was the first and only newspaper published in Delaware previous to the Revolution. Georgia also had but one newspaper previous to the great strug-

gle for independence, the "Georgia Gazette," first issued by James Johnston in 1762.

With the establishment of American independence literature seemed to rise and spread in every direction, and ere long the publishing business became immense. To-day it almost rivals that of the whole world. The most noted publishing houses in the United States are the Harper's and Appleton's of New York, Lippincotts of Philadelphia, and Ticknor and Fields of Boston. Ivson, Blakeman, Taylor & Co., and A. S. Barnes & Co., of New York, and E. H. Butler & Co., of Philadelphia, take the lead in the list of American school book publishers. Either of the above named firms turn out hundreds of thousands of volumes yearly.

Among the leading American newspapers may be mentioned the Herald, Sun, Times, Tribune, World, News, and Day-Book, of a political character; the Ledger, Saturday Night, Fireside Companion, and New York Weekly, as story papers. The more prominent pictorials and illustrated papers are Harper's Weekly, Harper's Bazar, Frank Leslie's Illustrated Newspaper, Frank Leslie's Chimney Corner, the Days Doings, Police News, etc. Nearly all the above-mentioned periodicals have an immense circulation, and are among the cheapest and best of their class. The leading magazines are Harper's and Scribner's.

Few people are aware of the fact that the printer, as a general thing, does more work for the money than any other mechanic on earth. Step into any respectable printing office during working hours, and you will be convinced. A type has to be picked up and put in its place for every letter. Count the letters on a single page before you, and you will be astonished at the number. The Bible, we are told, contains 3,566,480 letters, and the type for each one of these had to be taken up singly and placed in the composing stick one by one. And yet the Bible is but one of the many millions of volumes turned out by the press every year. The books in the Astor Library, New York, cover about 21,000 feet of shelving, and weigh about 200 tons. What must have been the labor expended in type setting for this stupendous array of intellectual food? And yet this is but a mere speck in the mighty field of literature. Look at the newspapers and pamphlets and magazines published in almost every hamlet throughout our wide domain! The press-rooms of our largest publishing houses present a babel of whirling machinery. In some of them eight or ten heavy steam power presses are kept running night and day, while the printed matter is piled up like cords of wood, and drawn away like great loads of hay to the mailing offices, eventually to find its way to the reading millions.

When the type is once set and fastened in forms, the heaviest part of the printer's work is done. The forms are placed in the press, and the machinery set in motion. It passes under the ink rollers and out again, the white paper is laid upon it and carried beneath a heavy roller to instantly make its appearance as a printed page. Thousands of impressions are taken in an hour. If a great number of impressions are required, wax casts of the forms are made, and these are plated with copper by means of galvanic electricity, and from these plates the pages are printed. As any number of these plates can be prepared, a dozen presses may be employed upon a single issue of a paper. Books and papers published in this way are said to be electrotyped.

The first types were made of wood. Those now in use are generally made of lead, with a small proportion of antimony and zinc to render them more durable. The first book printed from movable types was an edition of Donatus. The first newspaper ever printed by steam power was the London Times, of Nov. 28th, 1814. The celebrated Hoe press was patented in July, 1847.

The highest price ever paid for any printed work was for the only perfect copy known to exist of Valdarfar's first edition of Boccaccio's *Decameron*, or "Ten Days' Entertainment," of 1471; one of the most extraordinary works of genius ever written, and which, after the lapse of five centuries, is still regarded as one of the purest specimens of Italian prose. It was sold at auction in London, June, 1811, and bid off by the Marquis of Blandford for £2,260, Lord Spencer competing for the prize up to £2,250.

The nineteenth century is an age of literature. The newspaper has become the great educator of the people. It is almost an indispensable article in every household. If you enter the dwelling of a stranger the newspaper upon the line or the books in the secretary will reveal to you the character of the minds of those people. If none appear in sight you may depend upon it that family are deplorably sunk in ignorance.

People do not realize and properly appreciate the benefit and power of the independent press. It is not sustained as it should be. They know that through its instrumentality America was discovered; that it was the key that led to the invention of the steam engine and the electric telegraph; that it swept away the dark ages and brought civilization to its present brilliant state; but they do not realize that its great mission has but just commenced. The world is still filled with ignorance, envy, malice, bigotry, jealousy, and superstition. These are to be eradicated by the dissemination of truth and knowledge, and in the great struggle the silent press has a mighty work to perform. In this noble work the newspaper is the one great school of man. Its cost is but little, and it should find its way to the home of the lowliest. In every family there are minds to be educated, expanded, and elevated. Let not the young grow up in ignorance while the newspaper remains the poor man's library. The true newspaper is a teacher of good morals, and a dispenser of true and useful information. We rise from its perusal

sal with a sense that our time has not been wasted, but that we are wiser and better than we were before. Such a paper exposes fraud and corruption and causes tyrants to tremble. It shields the innocent and brings the guilty to justice. Look at its work around us! It is the potent lever that is moving the world. By its power we exercise our liberties and privileges to-day. It is constantly bringing forth and demonstrating great truths, and crushing error in the dust. It is uniting mind with mind and heart to heart, in one grand brotherhood of love, peace, and universal progress. Let no man then say he is too poor to take a paper. He cannot afford to live without one. Perhaps he has children; and if so, their young minds must have food. Let him select for them some one of the many worthy publications of the day, and its periodical visits will be hailed with delight. A desire and thirst for knowledge will be awakened, and a boon will be conferred on the family. It will be like sowing seed in rich ground, and it will yield a hundred fold.

The Planetary System

Try a flight—pass over twenty millions or millions of miles. We have reached the nearest of the stars, and taking our stand on one of its planets, and waiting till evening falls, we look eagerly abroad to mark the altered aspect of the heavens. Here, surely, where we have put such an overwhelming distance between us and our former position, the face of the sky will be no longer recognizable—the old heavens will have passed away from over our head, as well as the old earth from beneath our feet. But no—as the stars one by one steal out from the darkness, they group themselves in their old well-known configurations. There is the Little Bear with its pole star and the Great Bear with its pointers; there are the bands of Orion and the sweet influence of the Pleiades; there are Mazaroth and Arcturus, just as they appeared to Job five thousand years ago, and sixty billion miles away. Vast as is the space we have traversed, it is not a thousandth part of that which separates the two most distant stars of the system, and hence we need not wonder that the change we have found is no greater than that which comes over the distant landscape as the traveler advances a score or two of yards along his way. Let us, then, pursue our journey still further. Sun after sun beams upon us with its brilliant bands of planets and comets—sun after sun pales and lessens in the distance as we leave it behind in our flight. Gradually a change creeps over the face of the heavens. The general figures of the constellations remain the same, but those behind contract their dimensions and shrink more closely together, while those in front are opening out and growing larger and brighter. At length we near the farthest confines of the Milky Way.

Very few and scattering are the stars which still remain in front of us. We can number them all with ease. And now but three are left before us—but two—but one. That one is reached in turn. We pass to the further side and look forth into the mysterious abyss which lies beyond. Before, behind, to the right, to the left—which way we turn our gaze, it meets with deep, but the blackness of darkness—the nought gloom of the midnight sky is unbroken by the gleam of a single star. Onward still we wing our daring flight; the last resting place is abandoned, the last oasis left behind, and we venture forth into the trackless waste of space. One by one the planets of this last sun are passed in our course; now and then a comet overtakes us, and blazes swiftly past into the depths beyond; but if we look onward we see that even it soon pauses in its reckless flight, and wheels back on rapid wing to less solitary and untrodden regions. The sun itself dwindles down to a star, and takes its place among a cluster of others which come forth from behind and around it as its paling light permits them to become visible. And soon this cluster too fades, till all distinction of stars in it is lost, and nothing is left but a dim white patch of light, ere long to be blotted out in turn, as it seems to be swallowed up by the surrounding darkness. All created works are left behind, and we stand alone face to face with the infinitude of God—alone, where mortal footstep has never been trod, where presence there has never been save that of the ever omnipresent Creator and the spirits which pass and repass ascending the ladder of vision which bridges the chasm between heaven and earth, as they go and come, ministering to the heirs of salvation.

ALLIGATORS fall into a lethargic sleep during the winter season, like the toad.

Meteoric Stones.

It is a curious and indeed a startling fact, that hot, ponderous masses of mineral and earthy matter are often projected with great force upon the earth, from the mysterious depths of space from over our heads. In former times the falling of these stones, as well as other celestial phenomena, like comets and eclipses, were universally regarded with the greatest awe and superstition. The fall of a meteor in Eastern countries was supposed to be the immediate precursor of some important public event or national calamity, and therefore the precise date of each descent was carefully recorded. In China, for example, these records go back more than two thousand years, and there are extant accounts of the fall of sixteen aerolites between the years 644 B. C. and 333 after Christ. No wonder the ignorant people of those early times were filled with terror, when the whizzing missiles, all aglow with light, dashed upon the earth, as even now, in this age of science and universal knowledge, we can scarcely regard them without a certain degree of dread. There are on record four or five cases of persons who have been killed by them; and villages in India have been set on fire through their agency. Instances of injury it is true are rare, but since these stones are liable to fall any where, at any time, it is not pleasant to reflect upon the serious catastrophes that may suddenly occur.

The stones that come down to us from above are always in a more or less heated state, and sometimes they are quite incandescent. The heat in large masses continues so long, that often they cannot be touched for several hours. Passing over the accounts of the fall of aerolites in ancient times, with the exception of that of *Ægos* on the Hellespont, which happened about the year 467 B. C., we will consider briefly some of those which have fallen within the past five or six centuries. The meteoric stone which fell at *Ægos* was of vast size, if the accounts of Plutarch and Pliny are reliable. They represent it as a great stone, the size of two millstones, and equal in weight to a full wagon-load.

A very remarkable aerolite fell in Alsace, in France, in 1492, just at the time when the Emperor Maximilian, then king of the Romans, was on the point of an engagement with the French army. This stone is still preserved in the Public Library of Colmar, and is regarded as an object of much interest by residents and travelers. In 1803, in the neighborhood of Caen and Alençon, France, a large fire-ball was observed at a considerable elevation, in the daytime, when the sky was clear and cloudless. It suddenly changed to a vaporous condition, which change was attended with a violent explosion, and soon after, the rattling of stones was heard among the trees and buildings, over a wide area. From this exploded aerolite more than three thousand fragments were picked up, ranging in weight from half an ounce to seventeen pounds. The first recorded fall of an aerolite in England was in 1633 in Devonshire. Westcote, one of the quaint old Devonshire historians, thus describes the incident: "In some part of this manor there fell from above—I cannot say from heaven—a stone of twenty-three pounds' weight, with a great and fearful noise in falling; first it was heard like unto thunder, or rather to be thought the report of some great ordnance, cannon or culverin, and as it descended, so did the noise lessen, at least when it came to the earth, to the height of the report of a petronel or pistol. It was for matter like unto a stone singed or half burned for lime." This stone, in its descent, buried itself in the ground three feet deep, and it was 3 1-2 feet long, 2 1-2 wide, and 1 1-2 thick. Since the fall of this stone, twenty others have been recorded in England, one of which weighed 56 pounds. This is now preserved in the British Museum. In striking the earth it penetrated through 18 inches of soil and hard chalk.

The fall of stones in this country has been very frequent, and almost every museum of any extent contains one or more specimens. The singular mass on exhibition at the Smithsonian Institute, in Washington, attracts the attention of all visitors. It is of annular form, and externally is smooth as if polished by hand. The two metals which preponderate in its composition are iron and nickel, and it is therefore a dense, heavy mass. Aerolites have fallen in every State of the Union, and in Mexico and South America, and there are but few persons living, having attained middle life, who have not seen in the heavens these fiery messengers, swooping athwart the sky, and lighting up the country for a vast

distance. They are still objects of terror to the Indians in the northern and western sections, and to simple, ignorant people living upon the borders of the States.

About a hundred years ago, the eminent mathematicians of the time took up the subject, and by a course of elaborate calculations, proved that meteoric stones could not come from the moon, as by careful measurements of their velocity they were found to move, when near the earth, at the rate of 114,000 feet, or about 21 1-2 miles per second; whereas, if they came from the moon, they would start with an initial velocity of 8,292 feet per second, and reach the earth with a velocity of only 35,000 feet per second. It was clear, therefore, that they came from a more distant region in space than that occupied by the moon.

Coral and Pearl Fishing.

The manner in which the Mediterranean fisheries are conducted is by man small boats—coralines they are called—with crews of eight men each. These men are always excellent divers. They take with them a great cross, whose arms are of equal length and very strong. To each arm is attached a net, shaped like a sack. A stout rope is fastened to the center of the cross, by which it is lowered to the bottom of the sea, with sufficient weight to keep it steady. The diver next descends. The cross he moves about so that the arms scrape the coral from the rocks, and it becomes entangled in the nets. About thirty seconds is the average time in which a diver can do this work. At a given signal he is drawn to the surface of the water, with his cross and coral, by the men in the boat.

The fishery that furnishes us with pearls and the mother-of-pearl is the most perilous of all the submarine pursuits. These two substances are the same in composition. They are formed mainly of carbonate and phosphate of lime. The great difference in value between the two is because the so-called mother-of-pearl is found in several species of shell-fish, and is, therefore, abundant; but pearls are comparatively rare and accidental. Even in the species in which they are most frequently found, twenty or thirty shells are often examined before one can be found of a regular outline and of a certain size.

The pearl oyster, which the fishermen call *pintadina* or "mother of the pearls," resembles the common oyster, but is much larger. It is principally caught in the Strait of Manaar, between the Island of Ceylon and the extremity of the Deccan. It is also found on the coast of Japan, the Persian Gulf, the Red Sea, the Gulf of Mexico and the coast of South America. The fisheries in the Strait of Manaar belong to the English. These oyster-beds comprehend several banks, one of which is said to be twenty miles in length. Fishing commences in the month of February and ends in May. Each boat has a crew of twenty men, half divers, half sailors, besides a master and a pilot.

Each diver grasps with the toes of his right foot a rope to the end of which a stone is attached. The stone helps his descent, and enables him to keep at the bottom of the water. He never dives head foremost, but goes down either in a standing or crouching position. With his left foot he holds his net. In his right hand is the stone-weighted cord. His ears are stopped with cotton, and with his left hand he pinches his nostrils. When he arrives at the bottom he hurriedly picks off all the oysters within his reach, places them in his net, which he hangs about his neck, and when he can remain no longer, at a given signal he is drawn up by his companions in the boat.

A diver never can work at greater depth than eight or nine fathoms. Neither can he remain under water at great depth more than half a minute. There is no truth in the statement that these men sometimes spend a minute or more under this mass of water. The pressure is twofold that of the atmosphere, and no man is capable of so extraordinary a feat. A robust diver will sometimes accomplish fifteen or twenty descents in one morning; but under adverse circumstances will not dive more than four or five times.

Diving soon affects the health of the men. A diver rarely grows old. Many of them contract a frightful disease, which unfits them for work. Their sight grows weak. Then their eyes become ulcerated, and all their body covered with sores, others are stricken with apoplexy or die of suffocation at the bottom of the sea—

some fall victims to the sharks, that are the terror of pearl fishers. The presence of one of these voracious man-eaters on the fishing-ground will scatter an entire fleet of boats and drive them into port. J. J. W.

Manufacture of Silk.

Many efforts have been made in our country to make a success of silk manufacture, but none of them have yet brought that industry to perfection here. It was, as a writer properly states, "an object of attention and hope before the Revolution. In Pennsylvania a society was formed to encourage the importation of silk-worms and the establishment of filatures. The weaving, preparing and dyeing of silk occupied the attention of our ancestors, and they had hope of rendering it a successful branch of industry. Yet, from various reasons they failed, and the next generation took up the task, to fail again. When the protection of American manufactures became the principle of a great party, encouragement to the silk manufacture was given with no more success than on previous trials. The great morus multicaulis excitement had its origin in the hopes built upon the establishment of the silk manufacture, and, when that bubble burst, the effect upon the silk production was serious. Yet we have before us a hopeful condition of affairs in reference to this industry.

"In 1860 the value of the silk manufacture was returned by the census takers in the United States, at \$3,000,000. This capital has been increased ten times in the course of ten years, and value in 1870 at \$30,000,000. It gave employment to six thousand persons, and their earnings were up to \$800,000 per annum. Silk is woven in this country for many articles of use and of apparel which do not compete with the dress goods from foreign countries. Neckties, scarfs and ribbons absorb a considerable portion of the manufacture, and dress silks are woven with such fineness as to command sales."

Sewing silk is by far the largest and most important branch of this production. New Jersey has at Newark and other places, some successful factories devoted to this branch of business alone. In Connecticut a large interest is manifested in manufacture, and those concerned in it are so well satisfied with their progress, and the demand for their goods increases so gradually and surely, that in ten years more we expect the advance in this branch of industry will be more remarkable than it has been during the last decade.

The Cedars of Lebanon.

The cedars of Lebanon, once the glory of the earth, have become like a history of the past. Time was when their widespread branches, each forming a green plateau, one above the other, flourished in all their luxuriance and beauty, on the far-famed mountain of Lebanon. That was the time when the monarch of Tyre—a city then the queen of nations—sent thousands of his workmen to fell cedars for the construction of the Temple of Jerusalem. Those who would view the cedars of Lebanon now must be somewhat affected by the fewness of their number and their decay and desolation. A little remnant is left, and the traveller gazes upon them with a feeling that has in it a touch of sadness. All through the middle ages a visit to the cedars of Lebanon was regarded by many persons in the light of a pilgrimage. Some of the trees were thought to have been planted by King Solomon himself, and were looked upon as sacred relics. Indeed, the visitors took away so many pieces of wood from the bark, of which to make crosses and other articles, that it was feared the trees would be destroyed. The once magnificent grove is but a speck on the mountain side. Many persons have taken it in the distance for a wood of fir trees; but on approaching nearer, and taking a clear view, the trees resume somewhat of their ancient majesty. The space they cover is not more than half a mile; but once amidst them, the beautiful fanlike branches overhead, the exquisite green of the younger trees and the colossal size of the older ones fill the mind with intensest admiration. The trees are fast disappearing from the face of the earth. Each succeeding traveller finds them lower in number than his predecessors. There are now but seven of the cedars remaining, which from their age and experience indicate that they had an existence in Bible days.



AFTER CHRISTMAS.

BY MRS. S. M. WALSH.

I have lately heard a secret,
Heard it, too, from truthful lips;
Santa Claus, the sly old fellow,
Makes his after-Christmas trips.

I've been told he has discovered
Many things that cause him pain,
Discontent and hateful envy—
Thoughtful love bestowed in vain.

He has seen his choicest presents
Torn and broken and defaced;
Santa Claus, though rich and lavish,
Frowns on willful, wicked waste.

All unseen he watched some children
In their pleasant home at play,
With the very toys he gave them
On the Merry Christmas day.

Johnny's rocking-horse was splendid!
Gaily decked in red and gold;
Katy's doll, as fair a creature
As a child could wish to hold.

Johnny's horse was kicked and battered,
Just because it couldn't neigh!
Thought his papa might have brought him
Two live horses and a sleigh!

Katy wished her doll was larger;
Wished its eyes were black, not blue;
Finally grew vexed and threw it—
Broke its lovely head in two!

Santa Claus looked grave and troubled,
Shook his head and went away;
"I'll remember this," he muttered,
"On another Christmas day!"

Then he peered in dismal places,
Where he was not wont to go;
Where the hungry, shivering children
Never any Christmas know.

And his heart was sad and sorry
That he could not help them all;
And he thought in grief and anger
Of the broken horse and doll.

As he took his onward journey,
He was seen to drop a tear,
And I'm certain that he whispered,
"I'll remember this next year!"

But he has so much to think of,
And so many things to get,
Can't the Johnnies and the Katies
Think of it, if he forget?

THE eucalyptus trees planted at Nice have prevented, during the last two years, the malarial fevers usual in that city.

The Bohemian Waxwing.

BY J. J. WORTENDYKE.

This bird is very rarely brought to this country. It is found in all parts of Europe, chiefly preferring the northern latitudes. It lives in forests, especially of pine and fir. It is a migratory bird, although not in the strictest sense of the word, being found in the southern parts of Germany all winter.

It is chiefly prized on account of its very beautiful plumage, which is thus described by Bechstein: "It is about the size of the redwing thrush, eight inches long, the beak black, short, straight, convex above and broad at the base, so that the mouth opens widely; the irides red-brown, the feet black and almost one inch high, the plumage is entirely of a delicate and silky nature; the feathers on the vertex are elongated and form a crest, the head and upper part of the body are of a reddish ash color, passing into gray at the rump."

This is a very hardy bird, easily reared, and well adapted to be a cage bird for this country, because it is so well inured to a cold climate. Bohemian waxwings or "chatterers," as they are sometimes called, suffer from artificial heat. Even a small degree of heat becomes insupportable to them, and if an apartment becomes in the least warm, they immediately droop. This is a proof that a very cold climate must be their summer place of resort. I should advise those to put them in a cage who dislike a room being soiled by birds. The cage must be one similar to that used for the thrush, but the floor should be covered with sand, as these birds are very uncleanly.

In spring he feeds like the thrush, upon various sorts of flies and insects; in autumn and winter it eats all kinds of berries, service, mistletoe, buckthorn, viburnum and juniper berries, and, in case of need, the buds of beech, maple and fruit trees.

It swallows everything in large pieces, and eats roll with avidity. He is, besides, no epicure, and swallows all eatables thrown to him, such as greens, potatoes, and even raw salad and all kinds of raw fruit. It is fond of bathing, but only sprinkles itself, and does not wet itself so much as other birds.

Flying Fish.

The mechanism of the movements of the flying-fish through the air has been described with much detail by Professor Moebius, of Kiel, who concludes, from the observations of those who have published on the subject and his own, that the flying-fish dart from the water with great speed without reference to the course of the wind and waves. They make no regular flying motions with their pectoral and ventral fins, but spread them out quietly, though very rapid vibrations can be seen in the outstretched pectoral fins. The hinder part of the body, while the fish moves in the air, hangs somewhat lower than the forepart of the body. They usually fly farther against the wind than with it, or if their track and the direction of the wind form an angle. Most flying-fish which fly against or with the wind continue in their whole course of flight in the same direction in which they come out of the water. Winds which blow from one side on to the original track of the fish bend their course inward. All fish which are at a distance from the vessel hover in their whole course in the air near the surface of the water. If in strong winds they fly against the course of the waves, then they fly a little higher; sometimes they cut with the tail into the crest of the same. One such flying-fish rises to a considerable height (at the highest, by chance, five meters above the surface of the sea) whose course in the air becomes obstructed by a vessel. In the daytime flying fish seldom fall on deck of the ship, but mostly in the night; never in a calm, but only when the wind blows. For the most part they fall on ships which do not rise higher than two or three yards above the water when they are sailing on the wind, or with half wind, and are making a good course. Flying-fish never come on board from the lee side, but only on the windward side. Before vessels which pass between their swimming schools the fish fly into the air as before predaceous fish or cetaceans.

The sea holds 60,000,000,000,000 tons of salt.

NATURE, SCIENCE AND ART.

Mankind were placed in this world to do good. This great mission is not confined to the few—to a minister here and a statesman there, but to the whole human race. The still voice of God is whispering through the portals of the mind of every living soul, bidding them work in His vineyard to-day. There are none exempt from duty. Every one, be they ever so humble, has an important part to perform in the advancement of the world. Let us all, then, be found at our posts of duty, with energy, with action, with determination; shoulder to shoulder with the great army of progression, rolling the mighty wheels of education and truth over the foul weeds of ignorance, with its attendant miseries of vice and crime.

Through the medium of the printing press the leading men of to-day have become acquainted with all the discoveries and inventions former generations have ever made. To these they have added their own theories, speculations, and discoveries, and they have made the present age an age of progress. They have made deep researches, and have performed their parts well. But now the heads of many of our noblest minds are becoming silvered o'er with gray. They will soon pass away, and sleep the silent slumber beneath the sod, as their fathers have before. You, my young friends, will soon be called upon to take their places in the world. You will have greater advantages left for you than have ever been left for any previous generation. Fit and prepare your minds, that you may be every way worthy of your sires who have gone before.

Through the work of the rising generation we look forward to great inventions in the future. People will study, reflect, and learn; and depend upon it, the spirit of true progression will never flag. As has been said before, this generation is wiser than that which preceded it, and the next generation will be wiser than this. The noble system of free schools is rapidly raising the United States to the foremost rank among the learned nations of the world. The enormous number of books and papers published and circulated among our people attest the fact that ours is a reading and thinking nation. The desire for knowledge is on the increase; and step by step scientific progress is moving forward. A hundred years ago the bare thought of a steam engine had scarcely found a place in the brain of man. Plows were made of wood, and hoes with handles inserted through eyes. Who had dreamed of the electric telegraph, the mowing machine, the sewing machine, and the ten thousand other great inventions that crowd the page of discoveries of the nineteenth century? No one. The age of genius, enterprise, and learning had not developed itself.—Great minds have studied, thought, and reasoned all their lives to bring about the present state of human knowledge; and now they arrive at the conclusion that they are taking the first step upon the ladder of progress, and that they have barely learned the A B C of science.

Young men and women, you will soon have not only the ship of state, but the destinies of the world committed to your care! Resolve this hour to prove yourselves well worthy of the great trust. The young men who will be the statesmen, governors, and presidents in the year 1900 are now among us. They are not found among those who frequent saloons, tipping houses, and gambling dens; they are to-day leading virtuous lives, eager in the pursuit of knowledge. The great book of Nature lies before us all, and inwardly the cry comes welling up in our bosoms—shake off this lethargic sleep of inaction! arise, go forth and learn.

Geology, what do we know of it? In the time to come, if studied in the right direction and with the right spirit, what hidden treasures may it not reveal? These native hills and valleys are literally filled with minerals; whether worthless or not the meditation and brain work of the future must bring to light. Astronomy, what do we know of it? That our world when compared with the innumerable host that course through the firmament of heaven is but a grain of sand upon the seashore. What are their number? are they inhabited? what are their destinies? We await the answer of the learned minds of the future. Chemistry, what do we know of it? Just the bare introduction. And even now by its agency we can cause water to burn like wood or coal. What wonders may we not expect future generations to astonish the world with, in respect to this great science? The principles of Natural Philosophy, what do we know of them? Scarcely the A B C. It is true we have great power looms, steam presses, steam engines, and we navigate the air in balloons; but what are these in comparison to the great hidden powers contained in this branch of science, and which energetic minds are yet to work out? Electricity, what do we know of it? Scarcely nothing. It is true we have spanned the ocean with the electric telegraph, and performed a few more little wonders, and it is said we have advanced science so far that we handle the lightning. But what is this? Go to where the great oak four feet in diameter at the base and with a hundred spreading branches has been struck by a bolt from the storm cloud and shivered to splinters. There is a mighty power here, and before it steam and gunpowder pass into comparative insignificance. It pervades all nature. It invisibly surrounds us every day of our lives. It courses through every part of our bodies. Without it we die. Who is going to bring this great power to light? who is going to handle it? who is

going to utilize it? Ask the generation yet to be. Magnetism, spiritualism, the mind, the eternal soul, what do we know of them? Again comes the answer that our knowledge in this quarter is almost imperceptible. Who is going to solve the dark mystery? Who is going to draw the veil aside and let in the glorious blaze of light and truth, like a mighty revelation from the portals of heaven? No one answers. Let the millions yet unborn work out the mighty problem.

Do not think because you are poor you are debarred and shut out from an education. It is not so. Franklin was poor, Watt was poor, Fulton was poor, and all the other famous minds in Christendom have struggled in their early days with poverty. "Where there's a will there's a way." Now, perhaps, you have never thought how small an amount of money is required to gain a vast amount of knowledge. Literature is so cheap that the world is flooded with books and papers of every denomination, sect, creed, and stripe. No matter what a man's principles and views are, he will find able advocates among the literature of the day. If your time and means are limited, the first thing to be considered is the choice of the literature you buy. The world is filled with that which is trashy and worthless, and even vulgar and obscene. Beware of such publications; for, even though they may not corrupt your mind, you can ill afford to spend your time upon them, and arise with the firm conviction that you have gained nothing from their perusal. Sit down and think what publications in your judgment would supply you with the greatest amount of desirable and useful information, and wisely make your choice. Fifty cents a month will, by a judicious selection, supply you with the necessary books for a noble self-education. Remember it is not the number of books that we read that gives us true knowledge, but our thorough understanding of them.

Don't be too ready to believe everything you see in print. Use your own judgment and reason in what you read. Throw away all prejudice and read *both sides* carefully. Look to the reasons of every theory advanced, and really believe nothing that you cannot make appear plain to your understanding. Do not take it for granted that the world is round because some one else has merely said so. Study their reasons and proofs, and if they appear reasonable believe them. In the study of mathematics, do not think that a problem should be worked thus and so, simply because the rule in the book says so; before you proceed seek for the *cause* of the rule, and endeavor to understand *why* problems should be worked thus and so. Knowledge gained in this way is permanent capital and power, for it will never go from us.

The world is filled with a great deal of book-learning and surface knowledge, of very little practical benefit. People do not learn enough for themselves. Those who study and reflect upon the cause and reasons of stated rules and theories soon reach the position of the author; and then their minds may reach ahead, and develop new theories and new ideas, and demonstrate new facts and rules never before dreamed of. In this way the world advances.

The public school is now in reach of most every one in the land. It is a blessing our forefathers enjoyed only to a very limited extent. Attend it steadily while you may; for remember, of all time, youth is the season to gain instruction. Never speak harshly or unkindly of your teacher. Aside from your parents he is the best friend you have on earth. Before you condemn him pause and reflect. Has he taught you anything low, vulgar, immoral, or mean? No. Have you performed your part properly? Have you studied because you took an interest in it? Because you saw its benefit? Because you loved it? And was your whole mind and attention given to the work? If not, you have no cause to complain; for unless you work for yourselves with a willing determination to succeed, you will not advance, though you attend the best schools for forty years. Forced learning is absolutely worthless. It must be gained by your own free good-will. The school-room is emphatically the place for work. Ere you waste your time, seriously ask yourself who you are cheating.

In this world, and in this age, time is money. Few realize the vast amount of time wasted and frittered away in frivolous pleasure. Now I do not mean to condemn all pleasure. I do not wish to advocate your going about with long faces as though you were marching to the executioner's block, or as though one foot was in the grave and the other on the edge, for pleasure and merry smiles is what brings happiness into the world. But be particular in your *choice* of pleasure, for there are many kinds. Avoid the low jest, or vulgar slang, sometimes used to raise a laugh at the expense of others. A thoughtless jeer sometimes wounds deep. You cannot afford it. Because some one has made a serious blunder, or has met with misfortune, do not seek to make him an object of ridicule. It is unmanly, ungentlemanly and unjust. As a man and a brother lend him a helping hand, or encourage him with kind and sympathizing words. Make it your motto to "Do unto others as you would have others do unto you." By so doing you become true and faithful, and pure and good. It is the sum and substance of all commandments; and it is the full and complete duty required of man. It will gain you friends and neighbors everywhere; and just so sure as you live, they will help you on, higher and higher, until you may stand upon the very pinnacle of fame. It is the path of a true Christian, a conqueror, and a hero.

One of the greatest pleasures in the world is that of acquiring useful knowledge. Early form the habit of reading useful literature, and storing your mind with wisdom. Think of the

long winter evenings at your disposal. To waste them foolishly is almost criminal. An hour's study each day for a year is about equal in time to a three months' term of school. Fifty cents a month will in seventeen years gain you a hundred dollar library; and in that time, if you have made a proper use of your leisure hours, you will have read them all understandingly, and you cannot fail of being an educated person. Fathers, a good library in your household is worth a thousand dollars to every one of your children. A good education is worth more than all else that you can give them. It is capital in itself. You cannot be guilty of stunting their mental growth.

Our recent civil war cost us nearly three thousand millions of dollars, and the destruction of thousands of millions of property. Brother was arrayed against brother in fraternal strife, the land was drenched in blood, and the nation filled with widows and orphans. Such are *ever* the foolish fruits of war. What an advance might the world have made had this vast sum been expended in the interests of science. How discouraged genius would have leaped for joy; and what great inventions and discoveries would have startled the world.

But we forbear further speculation. Things are *as they are*, and it is useless to repine over the follies of the past. Our duties are for the present. The world is moving on, time is moving on, and our lives are silently and steadily moving onward to the end. Time is now. It passes, and never returns. A moment once spent is forever gone, and we are another moment nearer the grave. Why stand we idle? The world is advancing in knowledge and greatness all around us. Others are performing their parts in the great drama of life, their shoulders are to the great wheel of progress—why this lethargy in us? We may not have the chances and the privileges that others enjoy, but what of that? We all have talent; and small though it may be, by cultivation it can be expanded and developed, and it will do good in the world.

Ignorance is constantly putting forth false literature and teaching false doctrines, through which the young mind is liable to be tempted and led astray. It is the instigator of drunkenness, debauchery and shame. It is the precursor of tyranny, crime and war. Thousands of our young men are being led away, and they are forming habits truly deplorable. These are to be the men that the coming generation will have to contend with. The past ages have had mighty obstacles to overcome. Look at the tyranny and persecution of the dark ages, and the horrors of the bloody Inquisition. You will not have these to strive against. The war between ignorance and knowledge will, however, continue; but knowledge and education are in the ascendant; and wherever civilization extends, the banner of ignorance trails in the dust.

And now the time has come to draw these brief lectures to a close. I have endeavored to give you an outline of the most wonderful objects of Nature, and the more celebrated objects to be met with in the field of science and art. Their preparation has been a pleasure to me, and now with reluctance I lay down the pen. If what has been said can induce the kind and indulgent reader to investigate and study deeper among more worthy authors, I shall be gratified. If it will raise in their hearts a desire for knowledge and truth, my highest hopes will be realized.

Effect of Steam on Animals.

An engineer who has run many a mile on the road, and been a practical worker with steam for many years, thus gives his experience of the behavior of certain animals under the effects of steam.

Dogs will run about the wheels of a departing locomotive, barking and leaping, and strange to say, few of them ever get hurt. An ox or bull can hardly be moved out of the way of an engine. Horses will race ahead of one on the track, and will not leave it until the last moment. Larks have been known, in several cases, to build their nests under railroad switches, and swallows frequently make their homes in engine houses. A pair of these birds have been known to build several years in succession in a noisy mill, where a steam-engine was keeping up a continual clatter and bang day and night, while another pair was known actually to build a nest in the paddle-box of a steamer which was constantly plying its trade upon the water.

On the western side of a Zoological Garden lies a connecting railroad, and over it at all hours of the day and night the heaviest locomotives are passing. The scream of the whistle one would suppose would greatly scare the dumb animals, there having a home. They do not, however, seem to be much scared after the first day or two's residence. The sea lion from the Northern Pacific, whose tank is in close proximity, seemed to require the longest time of any of the animals to become accustomed to the noise.

WHATEVER our place allotted to us by Providence, that for us is the post of honor and duty. God estimates us, not by the position we are in, but by the way in which we fill it.

T. EDWARDS.

Pre-Historic America.

The question as to the date at which this continent was discovered by Europe, seems in a fair way for settlement. We have long believed that the original discovery was made by the Norsemen, some eight or nine hundred years ago. These intrepid sea-kings had long before that had settlements in Iceland and Greenland, whence they drifted southward, certainly as far as the New England coast, leaving mementos of their visits in many places at which they touched or transiently settled. And now Canon Kingsley throws the weight of his scholarship and antiquarian lore into the same scale. In the second of his Boston course of lectures he elucidates the inquiry by the legends and sagas of the Norseland, leaving no doubt on the minds of his audience that Bjarne Grimolfson, so early as 863 years ago, had certainly visited these shores—and it is not likely that even he was the first. The lecture of Mr. Kingsley abounded with ancient citations of the most interesting kind, containing many references to early Norse and English history, and, from the reports of explorers and the traditions of their successors, the lecturer made it quite clear that the old Norse navigators not only discovered these shores, but coasted so far south as to hear of that high civilization which all antiquaries admit to have once existed in the milder zone of our continent.

The Ganges Canal.

BY CAPTAIN CARNES.

Taylor tells us that the Ganges Canal is one of the grandest undertakings of the age. It was constructed under the direction and at the expense of the Government, mainly for the purpose of irrigating the level, fertile tracts between the Ganges and Jumna, and also to afford means of transportation from the country to the head of navigation on the former river at Cawnpore. The labor of more than ten years had been expended upon it at the time of his visit, and it was estimated that it would take four or five years more to complete it. It will be eighty feet wide, its depth varying according to the season, but probably averaging eight feet, and including its numerous branches, will have an extent of eight hundred miles. It taps the Ganges at Hurdwar (eighteen miles to the northwest of Roorkh) and returns to it again at Cawnpore, a distance of more than four hundred miles. Its total cost will not be far short of £2,000,000, but it is expected to yield £500,000 annually. The Ganges Canal will be of vast importance in increasing the amount of grain in that region, the design of the Government being to render famine *impossible*. As this canal insures the perennial crops from failure, it increases the rent of the land, and so promotes industry and productiveness.

A great modern work in India is the Canal Aqueduct over the Lelane River. It is constructed exclusively of bricks, and, including the abutments, is a quarter of a mile in length by a hundred and eighty feet in breadth. There are sixteen arches of seventy feet span and rising twenty feet above the river, the foundation of the piers being sunk twenty feet below the bed. The arches are four feet thick in order to support the immense pressure of water about them. Hundreds of workmen were employed on the structure, and a small railroad was laid to bring the materials, and a locomotive was imported from England, but owing to the stupidity of the natives accidents were continually occurring, and the experiment soon proved a failure.

It is hoped now that this immense canal proves that intelligence and science have gained a strong foothold in heathenish India, that the horrible famines which have formerly visited this country may be no more known. In 1898 hundreds of thousands perished of want there; and this is the natural result of the existing laws, where the tenant is forced to yield the landowners 75 per cent. of the assessed products—therefore, if the crops fail, there is absolutely nothing but starvation for the poor and ignorant millions of India.

Descending into the bowels of the earth it is found that the temperature increases at the mean rate of one degree Fahrenheit for every forty-five feet. At this rate water is at a boiling pitch at a depth of six miles, while at a depth of sixty miles the hardest rocks known to the geologists are in a melted state.

A New Race of People.

A correspondent writes from Africa concerning some remarkable discoveries of a party of German explorers whom he had accompanied to the interior, under the lead of Dr. Von Guldenhorn. On the 122d day after entrance into a hitherto unexplored forest, they emerged upon a vast plain, on which were some large trees, looking across which one could see the silvery glimmer of a lake, beyond which mountains rose to an enormous height. For some reason the gorillas which had been following the expedition refused to follow them into the clear, but stood on the borders of the forest, shaking their fists angrily, while their faces wore an expression of fiendish and vindictive delight, which puzzled the Germans, and certainly, if all that Dr. Von Guldenhorn says is true, should afford Dr. Darwin a new chapter in regard to the expression of emotions in animals. Their actions were, indeed, so aggravating that the men could with difficulty be withheld from giving the brutes a taste of gunpowder, for Germans have a special dislike of being made the subject of ridicule the cause of which they cannot understand. After the fatigues of their long journey it may readily be believed that the explorers were gratified to find greensward on which to lie, and plenty of water to drink, for the plain was irrigated by a number of streams, on the banks of one of which they sat down and proceeded to eat a hearty dinner. Carefully observing the ground, they saw at a distance of about five hundred feet a plot of land which seemed to indicate that the territory was occupied by people skilled in agriculture. It was, or appeared to be, planted with a vegetable resembling gigantic red cabbages, arranged in regular rows. Dr. Von Guldenhorn approached them in order to make a closer inspection, when, to his great surprise, they moved rapidly away, each on its own pedicle, giving at the same time a loud shout which struck the exploring party at once with amazement and consternation. In less than a minute thereafter the air was full of stones, hurled with considerable velocity from the place to which the anomalous beings had retired, toward the Germans, and two of the party were struck, although the aim taken did not seem to have been very accurate, several of the missiles falling wide of the mark. Roused by this attack, Dr. Von Guldenhorn ordered his men to fire, and two of the beings curled up in death, their pedicles kicking and convulsively quivering like the legs of a hen whose head has just been violently removed. The noise of the explosion and the fall of the two beings seemed at once to strike terror to the hearts of their comrades, who ran off again, filling the air with their clamorous shouts.

The Germans then advanced to the place where those lay who had been hit with the bullets, and examined them. They were found to be animals so closely resembling men as to necessitate their classification in the *genus homo*. Taking hold of the extremity, what had at first been supposed to be a pedicle, of the corpse of one—the other being merely wounded—Dr. Von Guldenhorn found it in every particular to resemble the hand of a man. In lifting it from the ground the arm of this strange thing was found attached to the trunk by a ball and socket joint; the abdominal integuments, which were very small, were situated as in man; there was a very short neck, and the enormous head had first caused the beings to be mistaken for cabbages. This head was furnished with the eyes, nose, mouth, and ears of man; the eyes being small, but well set in the forehead, the nose somewhat flat and quite broad, the mouth capacious and the teeth large and strong, the ears like those of a negro. The top of the head was bald, the hair having been worn off in a way the cause of which the party afterward discovered to their cost. The bone of the top of the skull was apparently very thick, rather elastic than otherwise, and evidently capable of great resistance. While the one who had been killed was undergoing such slight examination as could then be given, the other, which was merely suffering from a fractured humerus, the ball having cut the biceps and shattered the bone, lay on the ground cursing and groaning, tearing his hair and watching his captors with glaring and revengeful eyes. The language he used was almost identical with that of the Bosjesmans, with which several of the party were tolerably well acquainted, and in it, as used by the fallen hero in his extremity, could be detected such expressions as “fool, double-headed Dutchman,

donnerwetter,” and others evincing rage and possibly also despair. As there seemed no probability of an immediate attack, Dr. Von Guldenhorn set the injured bone of his prisoner and endeavored to engage him in conversation, but he continued sullen and would have little or nothing to say.

As night had now come on, pickets were stationed, and the rest of the party lay down and were soon asleep. About midnight they were aroused by a shout, immediately followed by an attack of the legless one-armed men of Obiljipoona, who discharged themselves at their enemies by means of a device curious in the extreme. They had slowly worked their way into the trees by inserting the strong nails of their hands, one after another, into the bark, until a limb fit for their purpose was gained. They then flung themselves from this branch backward and forward until their bodies obtained a considerable momentum, when they discharged themselves singly or in volleys directly at their foes, striking with their heads and rebounding to quite a distance. Their operations could be seen by the light of the moon, which was shining brightly, and their actions were so grotesque that the Germans, though hard pressed and in danger, could not refrain from laughter, which only added to the indignation and rage of their opponents, who came at them now in broadsides and now singly, apparently with the notion of sharpshooting, which was not, however, particularly successful. At dawn the whole party swung and waddled away in disgust and chagrin.

The Germans had lost but one of their force, August Krumpelheim, a promising young engineer, from Bingen, who was struck on the head in such a way as to fracture his parietal bone so severely that, fever setting in, he died in two days. Two prisoners were taken, who were sent under guard to the Gold Coast, and are now on their way to Berlin, whence we doubtless shall soon receive intelligence of them.

Peculiarities of the Arabs.

No Arab is ever curious. Curiosity with all Eastern nations is considered unmanly. No Arab will stop in the street, or turn his head to listen to the talk of bystanders. No Arab will dance, play on an instrument, or indulge in cards or any game of chance, since games of chance are forbidden by the Koran. Never, moreover, invite an Arab to take a walk with you for pleasure. Although the Arabs are on occasion good walkers, they have no notion of walking for amusement. They only walk as a matter of business. Their temperance and their constant out-door habits, render all out-door exercise for exercise sake unnecessary; they cannot, therefore, understand the pleasure of walking for walking's sake. What Arabs like best is to sit still, and when they see Europeans walking up and down in a public place in Algeria they say, “Look! look! the Christians are going mad!” The Arab does not even mount on horseback, except as a matter of business or for his public fetes and carousals. And when you do walk, you should not walk quickly, just as in speaking you should not talk fast or loud, for the Koran tells you, “Endeavor to moderate the step, and to speak in a low tone, for the most disagreeable of voices is the voice of the ass.”

Indeed, it was observed by a famous Arab, “Countless are the vices of men, but one thing will redeem all—propriety of speech.” And again: “Of the word which is not spoken, I am the master; but of the word spoken, I am the slave.” The famous proverb, “speech is of silver, but silence is of gold,” is a motto of Arabic origin.

A silent, grave people are the Arabs, and a polite one; too very much given, nevertheless, to highway robbery on a large scale; but the Arab's tent is always open to you, and you can get any amount of camel's milk, or even roasted mutton, if he has it. You will be treated as a guest from God as long as you are under his roof, after which your happiness is in your own hands, which means that your host who fed you in the evening may, at a decent distance from his tent, rifle your saddle-bag in the morning, and let the powder speak to you if you object; after which, Allah be merciful to you.

There is nothing formidable about death except the consequences of it, and these we on selves can regulate and control. The shortest life is long enough if it leads to a better, and the longest is too short if it does not.

A Mystery of the Sierras.

BY MATILDA TRAVERSE.

Often during my rambles in the wilds of the Sierras has my curiosity been excited by some strange blossom, plant or natural formation. Often have I felt a thrill of horror and superstition which I found it difficult to banish, although being perfectly aware of the folly of indulging in such reflections, induced by finding myself in some weird, uncanny-looking place. But never have my sympathies been so intensely wrought upon, never have I experienced such a thrill of horror and awe, as during one of my many rambles and adventures in the Sierras, the particulars of which I am about to relate.

It was one glorious summer day. I sauntered along, a gentle breeze fanning my face, as it came laden with the spicy aroma of the pines. After climbing to the top of the ridge, I seated myself on a projecting boulder, and contemplated the lovely view before me. At my right was a shallow ravine, where the ground is covered with small pebble-stones. This place is called in mining parlance, "Prospect Hollow," or "Holler." On the other side a deep, dark-looking canyon, termed in the same elegant phraseology, "Rattle Snake Gulch." Away off in the distance I caught a glimpse of a strip of a sun-parched valley looking like a border of yellow ribbon on the green. And Mount Shasta, like some stately monarch, raised his snow-crowned head in the distance. Seeing some luscious-looking "Thimble" berries growing on the side of the canyon, I with some difficulty made my way down to them. After I had eaten as many as I wanted, I wandered along a narrow path which wound through the chapparelle. I was aroused from my reverie by perceiving that I stood at the base of a lofty cliff of gray-looking rock. There was an opening—a natural arch some fifteen feet high and twelve feet wide—which led to a sort of ante-chamber, which was nearly square. At the farther end was a narrow doorway about three by five feet, which led into an arched passage-way. The light being very dim and uncertain, I could see but a short distance in this passage; but as far as I could see the floor was smooth, and the roof arched, as was the outside chamber. Not caring to explore the gloomy-looking cavern alone, and having no light, I retraced my footsteps to the mining camp, which for the present I called home. As I descended the path which led into the Wolf Creek Canyon, the sun was just disappearing behind the tops of the pines, and the scene that met my view was Californian in all its details. Miners' cabins stood here and there along the creek—they were all built of logs and covered with slabs; one end rested in the chapparelle, and the other apparently rested on nothing; but on closer inspection you find them supported with poles with the bark on. On either side were dark openings in the mountain, where tunnels were being run. I hasten my footsteps across the narrow brook as I hear the loud murmur of an approaching volume of water, for I know by this that the floodgates have been raised at the reservoirs above, and that the hitherto pent-up volume of water will soon come rushing down the canyon, to be used by the miners in "cleaning up" after the day's "run."

As I pass by a large miners' boarding-house composed of two huge sugar pine logs on the "weather" side, forked stakes at the corners and roof, and remaining three sides covered with fine boughs interwoven, my nostrils are greeted with the flavor of strong coffee and "biled" beans, the proverbial miner's fare.

At last I reached my home, a fragrant bower composed principally of pine boughs, which occupied the only level space in all that mining camp.

The next day a party of four proceeded to explore the mysterious cave I had discovered the preceding day. We found the place, and after possessing ourselves of torches, we entered it. We proceeded along the narrow passage-way some twenty feet in single file; then we came to a lofty chamber. The roof was arched, as were the rest; we waved our torches aloft, and saw a strange-looking object lying in a farther corner. We approached it closely, and as the weird glare of the torches fell upon it we beheld with horror a grinning skull. The skeleton was dressed in some coarse dark cloth; a long bowie knife was lying several feet away, completely covered with rust; a rusty, worm-eaten rifle stood near the wall. There was a box, which was badly decayed, in which

were some letters, but they were so defaced by time, mold, and damp as to be unintelligible. We entered the cavern with gay laughter and repartee. We left it with hushed footsteps, bated breath and awe-struck countenances.

The following day an investigation was made, but nothing was found to elucidate the mystery. A bullet hole was found in the skull, and from appearances death must have been instantaneous. The rifle in the cavern was loaded, and it did not seem possible that the man could have committed suicide.

I shall never forget the strange feeling that took possession of me, as the funeral cortege filed mournfully out of the cavern at the entrance of which I and a friend were standing. Just then a gust of wind swept up the gorge, and waved the tops of the pines, and a mournful wail broke the solemn silence, then all the trees of the forest took up the plaint, and wailed and sobbed in unison. Some weeks after this, a miner from the camp was out prospecting, and in following up a "lead," he came to an old tunnel. It had partially caved in, and a grove of pine shrubs stood in front of the entrance which concealed it from view. He and some companions succeeded in removing the debris from the tunnel; the timbers had fallen to decay. About thirty feet at the farther end was not timbered, but stood perfectly solid with the pick marks plainly visible in the soft rock. This was near the cavern of which I spoke; all the necessary mining implements were there, but the gold-pan. The men tested a few handfuls of the gravel and found that it yielded well of the yellow metal. They then went to the cave, and after searching among the miscellaneous articles that were scattered about, they found an old gold-pan; and putting this and that together, one would draw the inference that the man whose skeleton was found in the cave was the owner of the "Tunnel Claim," and that he had possibly accumulated a large amount of dust, for which some person murdered him to obtain. This is the most plausible theory I can think of.

I often think if some of the dark, treacherous-looking canyons of the Sierras could give up their secrets, many a mysterious disappearance would be explained, and many an anxious one would hear of the sad fate of husband, lover, brother, or friend, who, with the fever strong upon him, bade adieu to his loved ones and hastened to join the stream of gold-hunters and adventurers who flocked to the Bay State in '49.

A Silk-Lined House

This house is made by a kind of spider that live in California, and is called the mason spider. His house is very marvelous for such a little fellow to make all alone by himself, without any hammer, or saw, or axe, or nails, or plaster, or any such things as men use in building; and yet this mansion is fit for a little queen; for it is lined throughout with fine white silk!

The spider's house is nearly as large as a hen's egg, and is built of a sort of red clay, almost as handsome as the brown stone they are so proud of in New York city.

It is cylindrical in shape. The top opens with a little trap door, which is fastened with a hinge, and shuts of itself. The door and inside are lined with the most delicate white silk, finer than the costliest dress ever worn by a lady.

Mr. Spider builds his house in some crevice, or bores a cylindrical hole in the clay, so that all is concealed from view except this tiny trap-door. When he sees an enemy approaching, he runs quickly to his silk lined house, swings open the little door, goes in and as the door shuts tightly after him, holds it firmly by placing his claws in two openings in the white silk lining of the door, just large enough to admit his little hands or feet, whichever you choose to call them; and here, nestled in this luxurious retreat, he bids defiance to all intruders.

A FAMILY in Red Willow County, Nebraska, has a cat that gave birth recently to two kittens; one of which lived three days, and was a curiosity, it being the possessor of 3 months, 2 noses, 5 eyes, 2 ears and 4 legs. It lived but three days.

RABBIT breeding is a regular business in Italy. The meat is used for food and the skins for furs.

The Phosphorescence of the Bay of Panama.

There is not, perhaps, a more extraordinary phenomenon to be seen at sea than when the old ocean is lighted up at night by the phosphorescence produced by the myriads of animalculæ that inhabit its waters. This luminous property of organic life is denied to the higher ranks of animals. For some years back, says the editor of the *Panama Herald*, we have taken notes when the sea that fills the Bay of Panama exhibited its illuminations, and as an occurrence that must have equally excited the wonder of many of our readers, we fancy the results of our observations will not be devoid of interest.

In February, when the rains are all over and the sea loses its clearness along the shores, in sheltered bays we begin to notice various colored patches on its surface. When said patches are of a brick-red hue the sea at night is sure to show forth its phosphorescence in every wave that breaks on the beach. The track of every fish is marked out by a radiance like the tail of a comet. The oars drop drops of fire, and the least disturbance of the waters is followed by a corresponding flash of unearthly light. If we take some of the water and interrogate it with the microscope, we find it contains an immense variety of the cyclopidae, the bell-shaped animalculæ and fan-shaped spiculæ. But the great lamp-lighter of the sea that stands first, is a little tailed vesicle, called the *noctiluca miliaris*. We have never found it wanting when the sea was vividly phosphorescent, and reddish patches were seen by day on its surface, driven onward by the wind and current. Caught and collected in a tumbler of sea water at night, these light-giving vesicles form a gelatinous scum on its surface, dark when quiescent, but giving out a vivid bluish light when the tumbler is shaken. Looked at next morning the mass of *noctiluca* has a reddish tinge, and has sunk to the bottom, as if some modification had increased their specific gravity. The spiculæ, which accompany these and aid in coloring the sea, are found to be hollow tubes, disposed in zigzag, stellar curves or shapes like the ribs of a fan, and break up in pieces. Then there are round minute gelatinous masses studded with minute ova, like plums in a pudding. If retained any length of time monads appear, and feeding on the gelatine set free the ova, which fall to the bottom. These monads also enter, apparently, as infusorial scavengers, the inside of the spicular-looking tubes filled with gelatine and yolk-like granules, and clean them out. They also make their way into the inside of the *noctiluca*, consume the gelatine that distends them, and liberate the more solid granules. Above all, the bell-shaped animalculæ of the sea one never tires of looking at. Every convulsive contraction of the stalks carrying the bell is a flash of light, like that of the stars. Watching still further the changes that take place in these multifarious marine infusorial luminous animalculæ, we found that each and every one of them finally extruded the ova-like germs they contained and broke up. The minute silicious tubes floated about empty. Of the bell-shaped animalculæ there only remained the central stalk. The bells were gone and the stalk empty of its granules. It would seem, then, that all these parent forms, after carrying about the ova germs, die and decay, or are eaten by monads, the ova-like granules are committed to the deep, to the bottom of which they sink to perpetuate the race; at all events, the sea toward the end of February has recovered its transparency, and no relics of those lighters-up of the ocean could be detected.

With respect to the cause of phosphorescence in marine animals, opinions are as various as they are unsatisfactory. That of Professor Panceri, of Naples, that it is due to the same condition that renders dead fish luminous, no one who has witnessed the power of emitting light by certain tropical insects and worms, more especially that wonderful beetle *Elater noctivagus*, which appear at night like wandering stars in the darkness of the forest, would agree to. They abound on the Isthmus, where they are often caught and fed on sugar cane. Left quiet and enclosed in a cavity made in the cane, they seem to get asleep. The light emitting organ is dull and opaque, but the moment the insect is awakened up, as it were, the light also becomes brilliant, like the letting on of more gas through an almost extinguished gas-burner. The light organ is evidently under the control of the

animal, and not the result of any involuntary chemical condition. When the animal is in a torpid state the sudden emission of light strikes one with the same forcibleness as does the return of intelligence to the human eye after a state of insensibility. In most of the marine infusoria the light-giving property seems to reside on the surface of their bodies, rather than in special glands. There is not a more beautiful object than certain microscopic melon-shaped jelly fish (*Beroë*) with its longitudinal rows of cilia flashing fire when they are in action. The mind of the observer refuses to believe that this brilliancy belongs to the same category as the phosphorescence of decaying fish and bones, and that for the reason that life in them being extinct, owe their phosphorescence to the disengagement of phosphoretted hydrogen. Professor Panceri, we understand, has submitted the light of phosphorescence to the spectroscope, with what result we have not heard. On the whole we consider the phosphorescence of the sea due to a function of animal life like the development of electricity in some species, rather than as being a mere operation of inorganic chemistry.

Eyeless Fish that Live in Hot Water.

A most singular discovery was recently made in the Savage mine, Nev. This is the finding of living fish in the water now flooding both the Savage, Hale and Norcross mines. The fish found were five in number, and were hoisted up the incline in the large iron hoisting tank and dumped into the pump tank at the bottom of the vertical shaft. The fishes are eyeless, and are only about three or four inches in length. They are blood red in color.

The temperature of the water in which they are found is 128 degrees Fahrenheit—almost scalding hot. When the fish were taken out of the hot water in which they were found, and placed in a bucket of cold water, for the purpose of being brought to the surface, they died almost instantly. The cold water at once chilled their life blood.

In appearance these subterranean members of the finny tribe somewhat resemble gold fish. They seem lively and sportive enough while in their native hot water, notwithstanding the fact that they have no eyes nor even the rudiments of eyes. The water by which the mines are flooded broke in at a depth of 2,200 feet in a drift that was being pushed to the northward in the Savage. It rose in the mine, also in the Hale and Norcross, the two mines being connected, to the height of 400 feet; that is, up to the 1,800-foot level. This would seem to prove that a great subterranean reservoir or lake has been tapped, and from this lake doubtless came the fish hoisted from the mine.

Eyeless fishes are frequently found in the lakes of large caves, but we have never before heard of their existence in either surface or subterranean water the temperature of which was so high as is the water in these mines. The lower workings of the Savage mine are far below the bed of the Carson river, below the bottom of the Washoe lake—below any water running or standing anywhere within a distance of ten miles of the mine.

Leaf Photographs.

A very pretty amusement, especially for those who have just completed the study of botany, is the taking of leaf photographs. One very simple process is this: At any druggist's get a dime's worth of bichromate of potash. Put this in a two ounce bottle of soft water. When the solution becomes saturated—that is, when the water has dissolved as much as it will—pour off some of the clear liquid into a shallow dish; on this float a piece of ordinary writing paper till it is thoroughly moistened. Let it become nearly dry in the dark. It should be of a bright yellow. On this put the leaf, and under it a piece of soft black cloth and several sheets of newspaper. Put these between two pieces of glass (all the pieces should be of the same size) and with spring clothespins fasten them together. Expose to a bright sun, placing the leaf so that the rays will fall upon it as nearly perpendicular as possible. In a few minutes it will begin to turn brown, but it requires from half an hour to several hours to produce a perfect print. When it has become dark enough, take it from the frame and put it in clear water, which must be changed every few minutes, till the yellow part becomes perfectly white.

Paper Manufacture.

A plant known as the paper mulberry is extensively used by the Japanese for the manufacture of handkerchiefs, napkins, garments, and numerous other articles. When the plant is about thirteen feet high, the winter season is chosen for the operation of removing the branches and chopping them into bits about two inches in length, and these are boiled in water until the bark comes off readily in the hand. Drying of the bark in the air for two or three days follows, and, after immersion in running water for twenty-four hours, the material is scraped on a cutting blade, so as to separate the two kinds of fibre of which it is composed. The exterior fibres are of dark color, and serve to make paper of inferior quality. The interior filaments are used for fine paper, after passing through various processes of preparation. Clothing is made from a paper called shefa, which is cut into threads more or less fine, according to the fabric to be produced. These are twisted by the fingers, previously moistened with milk of lime, and are woven into cloth either alone or with silk; the stuff can be washed, and is said to be of great strength and durability.

Photographic Chemicals.

BY W. P. BENNETT.

A person who sits for his photograph will notice a box with a brass tube in it, presented towards him from some direction. That box is a camera. In the tube are several lenses. These lenses are so constructed that they form an image on the ground-glass in the back end of the camera. If the camera is a good one, and the image not too large, it will be perfect in every particular, provided the subject is properly lighted. The image will be clear and well defined in every part, and although it is on a flat surface, it will exhibit a depth in proportion to the depth of the subject's head. But if we remove the ground-glass from the box we do not remove the image—it still remains where it was, in the space occupied by the ground-glass. The object of this paper is to explain how that picture, formed in the camera, may be taken out and looked at, and sold to a customer.

The image there formed is merely a reflection—a light and shade; then it is needful to place a something—a chemical—in the position of the ground-glass, that the light of the image will affect or impress.

Take silver coin or bullion, melt in a crucible, and pour into a dish of water. The water will reduce it to fine fragments. These are put in a glass jar and nitric acid poured on to the silver. If kept in a warm place a few days, it will be cut—that is, the acid will have united with the silver and formed nitrate of silver. When properly purified it can be dried by heat, and it forms into beautiful white crystals. Forty grains of these crystals are dissolved in an ounce of pure water for a bath. A glass tub, broad and deep, with walls very close together, to hold 20 or 100 ounces, is used to hold the bath.

Collodion is made—equal parts of alcohol and ether. In these are dissolved iodide of ammonia and bromide of cadmium, and six grains of gun cotton to the ounce of solution. The cotton gives the solution body and the iodide makes it sensitive.

The iron solution is made of protosulphate of iron (copperas), dissolved in water with six per cent. of acetic acid. The clearing solution is simply cyanide of potassium and water.

We now have our chemicals ready for use. Take a good French or German glass; clean it until it is absolutely clean. Hold it by one corner and pour on to it sufficient collodion to cover it and let it run off back into the bottle. The ether and alcohol will soon evaporate, and when just right, not too moist or too dry, immerse it in the nitrate bath. This is done by a dipper, a long narrow piece of glass with the lower end bent to support the plate. The plate is left in the bath two or three minutes, during which time it becomes charged with the silver. The iodine and bromine that are in the collodion have formed a double compound, which we will call iodide of silver. This iodide of silver is sensitive to light. When the plate is taken from the bath it presents a beautiful white surface, just a little tinged with yellow. The film is very thin and of a very fine and delicate texture.

No paper or cloth can begin to compare with it. It is very sensitive and not a particle of light must reach it. The plate is placed in a dark slide that fits the back of the camera. The ground-glass is removed, and the dark slide put in its place; a thin slip is pulled from the dark slide, and the film is exposed to the light of the image, in exactly the same surface that the ground-glass occupied. When the film is sufficiently exposed, the dark slide is closed and taken again to the dark room. We use a yellow light (that does not affect the film) to work by. When the plate supporting this film is taken from the dark slide, you can see no impression; it appears just the same as when put there. Holding the plate in position we pour on to it the iron solution—the developer—and lo! what a change! It seems like a spirit coming from some vasty deep. The shirt bosom or some light bow or ribbon is seen first, then the eyes and the high lights of the hair, and last comes the dark drapery.

Now we have a developed negative—that is to say, what was white in the subject is dark in this image, and what was dark in the subject is white in this image: so we have an opposite or negative. Now what has been done chemically? In the film is nitrate of silver combined with iodine. The nitrate of silver is a union of nitric acid with metallic silver. In certain places the light has impressed the film, and in those places the nitric acid has left the silver and united with the iron, because the acid has a greater affinity for the iron than it has for the silver. The silver being deprived of the acid is no longer nitrate of silver, but metallic silver. This we prove by drying the plate and rubbing away the cotton of the film, and the metallic silver is exposed, wherever the light has impressed the film; and in the shadows and dark drapery the glass is clear.

But let us go back to our negative as left by the developer. In this condition the lights are composed of metallic silver and the shadows of iodide of silver. The next object in the process is to remove the iodide. The film is thoroughly washed and the potash solution is poured over it and every particle of the iodide is dissolved off and the shadows are left clear, so that we have an opaque or dark image of the subject for our negative. It must be well washed or the potash would in time dissolve off the whole image. Now if we stand in a dark corner and hold the negative towards the light its beauties or defects may be seen. It is now dried and varnished to protect the film.

From this negative we can print photographs. Photographic paper is very fine and close grained. The face of it is coated with albumen, that gives it a beautiful finish. A nitrate of silver solution is put into a broad porcelain tray, and the paper floated on it. In the albumen coating there is chloride of ammonium. This combines with the nitrate of silver, absorbed by the paper, and forms chloride of silver, in the paper, which is sensitive to light. After the paper is dry a piece is put against the film of the negative and held by springs. Now wherever the negative is open and clear, the light shines through and changes the paper dark. The eyes, hair and drapery are open in the negative and of course print dark; and in the lights of the face and shirt bosom or ribbon, where there is a dense or opaque film, the paper is protected from the light and remains white; so that our negative has at last given a complete picture, or positive of the subject.

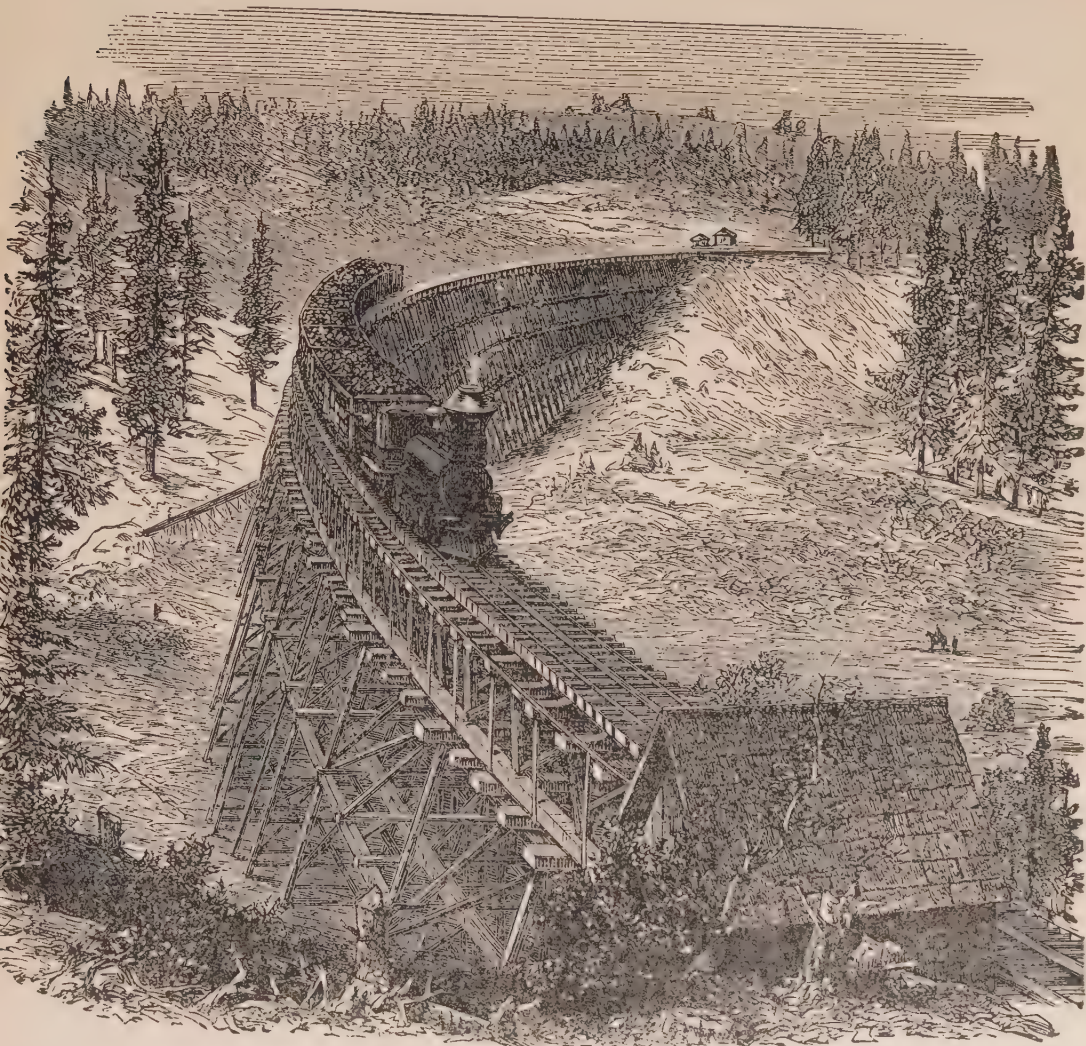
These pictures, if given out in their present condition, when exposed to the light, would turn dark and be spoiled. To prevent this, the silver must be removed from the paper. The prints are placed in water and the unused silver washed out. They are now quite too red for use, and are toned in chloride of gold to the desired tint. From the toning they are removed to a solution of hyposulphite of soda. This re-dissolves whatever chloride of silver may remain in the paper, and the print is no longer sensitive to light. The soda solution is washed or soaked from the paper with an abundance, and many changes of water, as you would soak salt from a codfish. The prints are then trimmed, mounted, pressed and delivered.

There is a fish which is used as a candle, and is caught on the coast of Alaska. It is about eight inches long, transparent, and very fat, which fat is pure, white, and very sweet. The Indians dry this fish then light it at the tail, and it burns with a clear sparkling flame, which the wind cannot extinguish.

THE WOODEN WONDERS OF AMERICA.

America has been called a wooden country, and with reason. From the Atlantic westward, and from the great lakes to the Gulf of Mexico, vast forests confronted the early settlers. Not a patch of corn could be planted till trees were felled. Civilization literally hewed its way

the bridges. To Englishmen, a "wooden bridge" is suggestive of a few rustic planks across a stream in some peaceful meadow. In America the ponderous train, freighted with hundreds of human beings, dashes across one wooden bridge after another, and miles and miles of trestle-work. Bridges in all stages of development may be seen in America, from the simple planks laid parallel on heavy timbers stretched from bank to bank, to the elegant suspension bridge spanning rivers so broad, that in recalling them the



TRESTLE-BRIDGE ON THE PACIFIC RAILWAY.

through barricades of timber. Timber lumbered the country as, in a few remaining localities, it does still. "Corduroy roads" were but a systematic arrangement of "lumber" stems felled, and offering other wise impassable obstructions. In the utilization of this superabundant timber, wooden towns arose, wooden bridges, roadways, piers, wharfs, ramparts, to an extent unknown in other countries. Imposing edifices, with architectural embellishments, are seen of wood. But of public works where wood is extensively employed, none are more astonishing than

Yankee may be pardoned for having compared the Thames at Richmond, in England, to a few yards of white ribbon among the gooseberry-bushes. Wooden bridges have taken a high rank in modern engineering; and for boldness in their design, combined with mechanical perfection and simplicity, America enjoys the precedence. As viaducts too, over the swampy region of lowlands, or across gulches and gorges in the mountains, whence you gaze down perpendicular depths, startling and terrifying to untrained nerves, the amazed traveler is borne along on

airy-looking woodwork. Many perilous journeys on creaking timbers can the writer recall. Through the swamps and cane-brakes of the South, during the late war, and across broad estuaries—where many parts were out of repair for want of hands—slowly and cautiously the train crept along, and glad were we to get on firm ground again. Crossing the Alleghanies, at elevations of some 2,000 feet, are chasms of terrific grandeur, bridged over by only wood. Again, along the Pacific railway, the trestle bridges of later construction are among the most remarkable features of the route. The traveler who crosses them for the first time, does so with a strange sensation of peril, as he looks down into the depths below, and seems to feel the great mass swaying beneath him. The accompanying sketch of one of them conveys a fair idea of several of them.

Spanning Dale Creek, a mountain stream near Sherman, is a trestle bridge, 650 feet from one rocky bluff to another. High, light, airy, and graceful, as you look up 126 feet from the silvery stream, and like ornamental trellis-work, its strength is nevertheless enormous. Not a single portion of the framework used in these bridges is less than twelve inches, generally fifteen inches in diameter; and the posts and piles "corded" or banded together with iron plates, are simply countless, except to engineers, who sum them up by mathematical rule. Another trestle bridge is at a point which, from its gloomy and dangerous character, has been named in the forcible, if not poetical, vernacular of the West, Devil's Gate. This—about ten miles from the Great Salt Lake—is where the Weber River rushes with tremendous violence down a chasm of the Rocky Mountains. On the first opening of the line, the train passed over on a trestle bridge seventy-eight feet above the boiling current, and where the volume of water was great and rapid. A Government inspector thus reported of the spot:—"Should a train go down into this fearful gulf, all who escaped being crushed would inevitably be drowned." He described the bridge as a "double trestle, one resting on the other," the supporting timbers standing at an angle of about forty degrees, gradually narrowing from the base to the top. "The upper timbers, among other means adopted to prevent their giving way, are secured by large ropes tied around them, and fastened to projecting rocks above." The inspector of the line pronounced the structure "extremely dangerous," and an iron bridge indispensable. As he was detained twenty-four hours to have the trestles better secured by means of additional braces, and recorded the death of a mechanic, who had fallen in and been swept down the raging current, "rescue being impossible," it is to be hoped that the trestle bridge at Devil's Gate exists no longer.

Good trestle-work is expected to last from fifteen to twenty years, and for viaducts is reckoned much cheaper than embankments.

American engineers affirm that when renewals are necessary, the timber can be replaced at small cost, or filled in with earth embankments, by transporting materials along the line at less expense than in the first construction of the railway. A glance at a few figures enables us to appreciate the labor and expense of transporting timber in the construction of our western railways. A great deal of the wood used is pine from Puget's Sound, reckoned nearly equal to oak.—Besides this, there is pine on the mountains, and what is called "hardwood," or scrub-oak, valuable, but unattainable, except from great distances. For instance, at Denver, Col., pine wood was procured at \$20 a cord, and scrub-oak at double that price. A cord contains 128 cubic feet of timber, and costs, where wood is plentiful, only from three to five dollars. From Denver to the nearest point on the Pacific Railroad, 200 miles north, timber was transported in wagons at an expense of about \$75 a cord, and purchased by the railroad agents at the enormous cost of \$105 each cord; the scrub-oak for twice that price. "What could make it such a price?" you ask. Distance. Picture to yourselves the labor of conveying it from the slopes of the mountains, and the long trains of wagons, each drawn by from twelve to eighteen mules or oxen, toiling over rocky heights and pathless plains at the rate of ten miles a

day. In one single year, and starting from one single town (Atchison, in Kansas) 4,480 of such wagons were in use to convey material for the railway. 7,310 mules and 29,720 oxen were required to draw these wagons, and 5,610 men to control and conduct them. 27,000 tons of freight were thus conveyed for the construction of the line. Not all wood, it is true were the loads, but similar calculations might be made from Denver and other lumber markets. Omaha, Leavenworth, and other large towns in Kansas and Nebraska, tell us of similar thousands of wagons, men, and cattle engaged in moving to its destination half a million tons of freight that one year.

The greatness of the engineering works of our country correspond with the vastness of her scenery. Her rivers, wide as they are, must be bridged over, and the plans adopted by the architects in wood, as well as in stone, iron, or all combined, vary with the nature of the localities. Suspension bridges of enormous proportions are taking the place of the old-fashioned drawbridges; and where immense width but less shipping demand bridges of a different character, experiments and combinations are countless. Wooden bridges with iron towers, iron bridges with wooden towers, piers of iron, wood or masonry, and various kinds of truss bridges, known by the names of inventors, now meet you all over the country. There is the "Lattice-truss bridge," the "Pratt-truss system," "Long's plan," "Barr's plan," and "Howe's," with blocks of "hard wood" and belts of iron through them, and braces, and counter-braces, and nuts, and screws, and bolts, and a variety of other things, comprehensible to the engineer only, and with which we will not fatigue the reader.

At Quincy, Illinois, there is a trestle bridge across the Mississippi, which, including the embankments, is nearly a mile in length.

The Portage bridge, spanning the Genesee River, was destroyed last year by fire. It spanned a gorge with perpendicular walls, through which the river leaps in three successive falls to the level of the valley below, and stood upon thirteen stone piers set in the river bed. Upon these piers it rose 234 feet. It was 800 feet long, cost \$175,000, and was so ingeniously constructed that any single timber in it could be removed and replaced at pleasure without deranging others.

Over the Schuylkill, at Philadelphia, is another remarkable wooden bridge, with a span of 340 feet. Over the Ohio, at Wheeling, is a wooden bridge which has a span of above 1,000 feet, and farther down, uniting the States of Ohio and Kentucky, at Cincinnati, is a suspension bridge whose total length is 2,250 feet, and 100 feet above high-water mark, with a center span of 1,067 feet. The Hudson, the Mississippi, the Ohio, the Missouri, each boast of bridges claiming honor for some especial feature.

At Omaha, the starting point of the Pacific Railway, the trains from the east were at first shifted bodily on to huge flat-bottomed boats to cross the Missouri River; and the first railroad bridge built there was swept away by the overpowering "freshets" on the breaking up of the ice. "Never mind," cried the enterprising and undaunted engineers; "we will build it stronger next time." And so they have. It is of iron now.

For the rivers to rise ten, twenty, forty feet within a few hours is not unusual, and bridges must be built accordingly. Against "ice-floods" some of the bridges are guarded with "ploughshare-shaped ice-breakers," or their piers sheathed with plate-iron, as in the Susquehanna bridge, whose piers are of solid granite masonry—eight of them on solid rock, and six, in consequence of the unstable bed of the river, on pile foundations.

The bridge now in progress over the East River, New York, is to eclipse all previously constructed bridges in astonishing engineering. Its center span will be 1,268 feet, and a tall vessel can sail beneath it. The piers of this magnificent structure rest on caissons made of pine from the forests of Georgia.—Each box, or "caisson," is 168 feet long, 102 feet wide, nine and a half feet deep, and eight feet thick, and at the bottom twenty-two feet thick. Inside it has a number of partitions, each four feet thick, and outside it is covered all over with thick iron. Besides this, the edges of the box are "shoed" with cast iron, and the whole interior is lined with boiler plates, every joint being air-tight and "bolted" strongly to the box.

We will suppose one of these dainty boxes ready to be sunk, what next? First, it is to be inhabited for a time by workmen, who pass in and out by an aperture at the top, and to the various chambers formed by the partitions, through which are openings. And thus it begins to sink, workmen and all.—Powerful machinery is employed—derricks and so forth—to shift this monstrous box to its destination, and to lower it into the water; and day after day, and night after night, the air is pumped in to the imprisoned workmen, while they pump out the sand and gravel and water, and excavate deeper and deeper—perhaps one hundred feet into the bed of the river—and all the while masonry is being piled on the top of the box to force it down, while the occupants dig and burrow beneath. When sufficiently sunk and settled on the firm bed of the river, the buried workmen are released, and their late habitation is filled in with concrete, which soon becomes as hard as the rock itself. This is the sort of wooden box on which rest a pier and a tower

of a suspension bridge, and railway trains into the bargain.

The construction of the bridge at Omaha, to replace the wooden one washed away by the spring floods, shows us what sort of bed is that of the Missouri River, as well as that of the Mississippi, the Platte, and several others, where rocks lie deep in the ever-shifting sandy bottoms. Imagine an iron "ring" ten feet long, an inch and three-quarters thick, and nine and a half feet in diameter. Scores of such "rings" were cast in Chicago, and conveyed across Illinois and Iowa to Omaha.—The railroad suspension bridge there is half a mile long, and has eleven spans of 250 feet each, and of course twelve piers, each composed of from six to twelve of these iron rings. Twenty-four hours are spent in sinking one ring, and the operation is similar to that of sinking the wooden boxes for the East River bridge. By an air-tight cover, and atmospheric pressure from above, it is driven down until the top is on a level with the surface of the ground. Then, by means of machinery, the sand is driven out—men working inside of it as well—until it has firmly settled, when another ring is lowered upon it and "bolted on," and so on, until the lowest ring has reached the bed-rock of the river. Though suspension bridges are of very remote origin, those of iron date only from the latter part of the last century. In ancient Peru were suspension bridges on the Andes made of ropes and bark of trees. The Chinese boast of one 330 feet high, built A. D. 63. "Wire" ropes in use at the present day are of six or seven twists, each from two to three inches in diameter. 14,560 such wires are employed in the cables of the Niagara Suspension Bridge, where the trains run 245 feet above the boiling torrent.

The project of the Pacific Railroad was first brought into public notice by Mr. Asa Whitney, who from 1846 to 1850 agitated the scheme in addresses to State Legislatures and to popular meetings. He proposed to construct the road by the sale of the public lands along its line, and he asked from Congress a free grant of alternate sections for a width of thirty miles on each side, to be given to himself and his heirs and assigns for the purpose. His design was to commence at Prairie du Chien on the Mississippi, cross the Rocky Mountains at the South Pass, and fix the principal Pacific terminus on Vancouver's Sound, with a branch from some convenient point west of the mountains to San Francisco.

One of the great objects which Mr. Whitney proposed to accomplish by the enterprise was to render America the route of Asiatic commerce. The settlement of California, however, furnished a new reason for the building of the road, and the scheme was taken up by the Government. Mr. Benton, of Missouri, for a long period advocated it zealously in the Senate and before the people.

The exploration of Col. Fremont, by throwing light upon the physical geography of this great and nearly unexplored region, advanced the project.

Finally in March, 1853, Congress made an appropriation of \$150,000 to defray the expenses of the necessary surveys, and in that year six parties were organized and sent out by the War Department. These parties were fitted out in the most complete manner, with a view to collect all possible information relative to the great physical character of the region traversed, including its topography, its elevation above the sea, its climate, its geology, its botany and its natural history, as well as all details bearing upon the actual construction of the road.

In 1854 Congress made two more appropriations of \$40,000 and \$150,000 respectively, for deficiencies and for continuing the work, and three additional parties were organized.

The reports of these surveys have been presented in 13 vols., 4to., and printed by Congress, with handsome illustrations and elaborate maps and profiles. For exact information relative to the physical characteristics of the great West, they will long remain the standard authority.

The Pacific Railroad was finally completed on the 10th of May, 1869, by the junction of the Central Pacific and the Union Pacific Railroads, at Promontory Summit, Utah, a point 1,084 miles west from Omaha, and 690 east from Sacramento. The last spike was driven with imposing ceremonies, and on the 15th of May through trains began to run regularly.

The average cost of constructing the road, including carshops, depots, stations, locomotives, cars, and all necessary expenses, except those of surveying, is stated at \$68,053 per mile for 914 miles west from Omaha, and \$90,000 per mile for 186 miles; while the total cost of the road for this distance, including surveys, is stated at \$82,445,012.

The Union Pacific Railroad Company was organized in October 1863, under a charter granted by Congress, called "An Act to aid in the construction of a Railroad and Telegraph Line from the Missouri River to the Pacific Ocean, and to secure to the Government the use of the same for postal, military, and other purposes." According to the provision of the charter, the management of the road is controlled by a Board of twenty directors, five of whom are appointed by the General Government, and are prohibited from holding stock in the road. The Government also exercises the right of appointing three commissioners to examine the road and report whether it is constructed and operated according to law.

The country has reason to congratulate itself that this great work of national importance was brought so rapidly to completion under such favorable auspices.

VALUE OF TIME.—As nothing truly valuable can be attained without industry, so there can be no persevering industry without a deep sense of the value of time.

How the Esquimaux Live.

In the winter season the Esquimaux live in huts built of snow, and we may imagine what must have been the necessity and distress that could first have suggested to a human being the idea of using such an unpromising material as a means of protecting himself from cold. Be that as it may, the snow "igloo," or hut, affords not only security from the inclemency of the weather, but more comfort than either stone or wooden buildings without fire. The construction of them requires considerable tact, and is always performed by the men, two being required for it, one outside and the other inside. Blocks of snow are first cut out with some sharp instrument from the spot that is intended to form the floor of the dwelling, and raised on edge, inclining a little inward around the cavity. These blocks are generally about two feet in length, two in breadth, and eight inches thick, and are joined close together. In this manner the edifice is erected, contracting at each successive tier, until there only remains a small aperture at the top, which is filled by a slab of clear ice, that serves both as a keystone to the arch and a window to light the dwelling. An embankment of snow is raised around the wall, and covered with skins, which answer the double purpose of beds and seats. The inside of the hut presents the figure of an arch or dome; but the usual dimensions are ten or twelve feet in diameter, and about eight feet in height at the centre. Sometimes two or three families congregate under the same roof, having separate apartments communicating with the main building, that are used as bedrooms. The entrance to the "igloo" is effected through a winding covered passage, which stands open by day, but is closed up at night by placing slabs of ice at the angle of each bend, and thus the inmates are perfectly secured against the severest cold.

The Wandering Stone.

In the Zillerthal, about half an hour's walk from the little village of Fugen, in a small valley on the right side of the entrance to the vast forest of Benkerwald, lies a rock some two cubic feet in measure, bearing on its side a rude cross chiselled in the stone.

The rock is noted all over the country, for each time it is removed from its resting place, by some supernatural agency, it returns again to the same spot. Why it wanders about in this strange manner nobody knows, but why it stands there is known to every little village child in the surrounding country.

At the end of the last century two peasant women of Fugen, were engaged by the day in cutting corn at the adjacent farm of Wieseck, on the Pancraz Mountain. The farmer, anxious to get in his corn while the weather lasted, promised to increase their wages if they hastened on with their work. At this promise, both the girls redoubled their efforts, but at the end of the week, instead of paying them alike, the farmer, in augmentation of their wages, gave to one of them two loaves of bread, while to the other he gave but one. On their way home, close to Fugen, and on the spot where now lies the stone, the two women began to quarrel about the bread, and at last this dispute grew so hot that they fell to fighting with their sickles, and, like tigresses, the sight of blood seemed only to increase their ferocity; and what seems to be incredible, but which is nevertheless perfectly true, they fought until they both fell down and bled to death on the spot. Here they were buried, and over them was placed the stone which still remains there, but none of the villagers will pass that way after nightfall.

There are numberless people who have convinced themselves of the wonderful properties of the Waldenstein, and many are the warnings given by the country folk to strangers who seek to pass there after the sun has set.

How violently do rumors blow the sails of popular judgments! How few there be that can discern between truth and truth-likeness, between shows and substance!
SIR P. SIDNEY.

NEITHER human applause nor human censure is to be taken as a test of the truth; but either should set us upon testing ourselves.
BISHOP WHATELY.

SNAKES.

BY JASPER T. JENNINGS.

We who live in the temperate regions of America, know by experience but little about the race of gigantic and venomous serpents. There are, however, many different kinds in our latitude, a few of which are poisonous and formidable, and many repulsive and forbidding in their appearance. Snakes appear to have the power of affecting the nervous system of man in an entirely different manner from any other representative of the animal kingdom. Not that I would advocate for truth the fabulous stories of serpent-charming set forth in the novels and fictions of the day, but who is there that has not been shocked and startled upon coming suddenly and unexpectedly upon this hideous reptile? A momentary shudder ruffles our tranquil nerves—it is natural, and we cannot help it; but reason and judgment come constantly to the rescue, teaching us man's superiority over all other animated life, and we return and crush the coiled serpent as we would a worm.

In countries where the ground freezes they pass the winter in a torpid state; and on coming forth on the return of warm weather, they shed their skins. Often they do not cast their skins until the heated term of the dog's days; at which time they are blind and sluggish, and far more apt to bite. On warm pleasant days in early spring they may often be seen in large numbers around springs and water courses, about the time the tender green grass is starting up, and the beautiful yellow blossoms of the dandelion are putting forth. On one occasion several years since I counted thirty-three, all on less than five square rods of ground. There were three different kinds; the streaked, green, and little brown snake. It was a bright sunny afternoon, about the first of May I think, and they had crawled forth from their winter's retreat to breathe the pleasant, invigorating air, loaded with the sweet perfume of swelling buds and blossoms, and to bask in the sun's genial rays, that was now fast dissipating the last remnants of occasional patches of old snow-drift along some fence or stone wall, and preparing forest and field for its kindly robe of celestial green. On another occasion, I counted twenty-nine small green snakes all on less a square rod of space. Many persons on seeing so many snakes congregated around their springs and wells have an antipathy against using the water. This, however, is all folly. The fact is they gather about springs and water courses because frogs, and lizards, and mice, which form their principal food, are more numerous in such places; and as the cold weather of winter approaches they descend into the ground which is warmer in their vicinity, and sooner thawed out in the spring. Let no one loathe the water on their account—they will not damage it. They are there to obtain food; and natural instinct told them where to go.

The serpent tribe are propagated by means of eggs; which are disposed in rows or bunches, in some old half decayed log or cleft of rock, and securely fastened together with a glutinous substance. Some time since, happening near where an old rotten log was being removed, I observed a large bunch of serpents' eggs of a dirty white color, each of which was about the size of a partridge's egg. I took them upon a smooth spot of ground and succeeded in breaking the tough leathery shell of one of them with a sharp stick, when out leaped a little spotted snake six or seven inches long, which instantly coiled up and leaped its full length directly at me, angrily darting forth its forked tongue. I soon put an end to its existence, and then proceeded to destroy the others; all of which acted in the same hostile manner. They were a species of adder, known in this section as the milk-snake, and were twenty-seven in number.

The milk-snake may be classed among our largest Pennsylvania snakes; measuring when full grown from three to five feet in length. It is mottled with large dark brown and yellowish white spots on the back, and its belly is white. Its aspect is exceedingly hideous and revolting. It feeds on mice, frogs and birds, and its known fondness for milk has been what has given it the name of milk-snake. Some years ago a well-to-do farmer, living less than a mile from my place of residence, noticed that his pans of milk were nightly robbed of their cream. At first he laid the blame on his cats, and they were promptly expelled from the house. Still it made no difference with the farmer's cream. It was missing as usual. One night shortly afterwards he solved the mystery. Having occasion to go to his milk-room with a light, he espied with horror a large milk-snake coiled in one of his pans of milk, busily engaged in lapping up the cream. He lost no time in killing the unwelcome intruder, and after that his cream was left untouched.

When the country was first settled saw-mills were but little known, and the houses and barns were mostly constructed of logs. These, though warm and comfortable, were not like the houses of to-day, and they often became infested with wasps and snakes. Among the early settlers of Northern Pennsylvania was a man by the name of Samuel Williams, who lived in a log house of the above description, but a short distance from my father's residence. One evening in the early autumn, just as the nights began to feel a little cool, he retired early, and was soon in the land of dreams. Sometime during the night he was awakened by the movement of something cold along his back. Instinctively he reached his hand behind him, and grasping a cold wriggling object, threw it out upon the floor. Leaping from the bed he struck a light as soon as possible, and hurried back just in time to see a large milk-snake

gliding from the spot. Of course the reptile was soon dispatched, but a shudder ran through the strong man's frame as he reflected upon his hideous bed-fellow.

The muscles of serpents are often very powerful; and when any part of their body is wound about any stationary object they will squeeze or pull remarkably. I once saw the end of a stick placed upon the body of a large milk-snake, just as it was in the act of entering a hole under a rock. The stick was pressed down with all the force of a strong man, while I with another stick endeavored to draw it from its retreat. After wriggling several minutes it pulled itself completely asunder, leaving six or eight inches of its tail beneath the stick. Five or six hours afterward, I observed a snake making its way across the field twelve or fifteen rods from the spot where the first had escaped, which fled rapidly on my approach and took refuge under a stone. Turning over the stone I quickly dispatched it, when I noticed that a portion of its tail was missing, revealing the fact that it was the same one that had escaped us in the morning. As it was, it measured over four feet in length.

Perhaps the most formidable of all North American serpents is the well-known rattle-snake. It inhabits hilly and mountainous districts, where the soil is loose, rocky and barren, often attaining a length of five or six feet, and in appearance resembling the adder or milk-snake. Its motion is naturally slow and sluggish, but when disturbed or irritated it quickly coils itself in a heap, with its head elevated in the centre, throws its jaws wide open, revealing its sharp hooked fangs, while its bright eyes gleam like two coals of fire. Its tail is raised and the warning note of its rattle thrills in the ear of the intruder; its neck is arched, and its eyes glow with an intense fiery light, fixed with a deadly glare upon its disturber; and then with a bound forward its fangs are struck deep into the flesh of its horror-stricken victim. At the root of the fangs is a little bag or natural reservoir of liquid poison. The fangs themselves are hollow, with a slit or aperture near the point, through which the deadly poison is thrown into the deepest part of the wound. The fatal fluid at once mixes with the blood, and should it return with the life current to the heart, recovery is hopeless, and death generally ensues in the course of two or three hours. If a person is bitten by a rattle-snake the most energetic means must be adopted to extract the poison, or death, riding on swift wings, will overtake him and convulse him with its horrid agonies before he is fairly aware of it. A bold, deep incision should be made in the wound at once, and if another person be near, the wound should be vigorously sucked for a quarter of an hour, and the poison blood drawn out. Previous to this a ligature should be tied tight above the wound to prevent the rapid return of the blood to the heart. An application of a drawing nature should finally be applied, and if everything has been done with dispatch the person will probably suffer but very little inconvenience from the bite. There is a plant found growing in some localities, called rattle-snakes' masterpiece, which is said to be an antidote for the poison; but whether it can be relied on in all cases, is extremely doubtful.

Along the Blue Ridge and Allegheny ranges of mountains immense dens of the rattle-snake are found, and here they are seen of the largest size. Some years ago, as a man was walking along the margin of a little stream that wound around the base of a steep rocky declivity, a spur of the Allegheny chain, in Virginia, he observed a smooth, hard path leading from a hole in the rocky soil above, down to the water's edge. As he stood wondering what could have formed the singular track in that wild secluded spot, he saw a rattle-snake emerge from the loose stones at the head of the path, and slide down to the water to drink. This was followed by another, and another, until he counted over two hundred, gliding and wriggling along the bank—a mass of loathsome reptiles that fairly sickened his sight. He now undertook to destroy the poison legion, but his task was too great. He worked with might and main, but they gathered around him in almost countless numbers, and ere long he was bitten more than once, and well knowing that death was near, he left the place. He had barely time to communicate the horrid fact to his friends ere his step faltered and his voice was forever hushed.

A number of years ago, a poor intoxicated Scotch vagrant fell into the large Flat Rock chasm near West Chazy, Clinton County, N. Y., and no one being near to help him, he miserably perished. Sometime afterwards some men happened to pass that way, and looking down into the chasm beheld with horror the skeleton of the unhappy man, literally filled with rattle-snakes. The sight was sickening, and they fled from the place. Returning well armed, the war was commenced, and ere long they had possession of the field. Several of the fearful reptiles were killed, while many more darted away and took refuge beneath the rocks and stones. The man was identified by the shreds of his clothing, and another name added to the list of the victims of the bottle.

Snakes are slow breathers, long lived, and can live a long time without food. In New England and New York there are at least sixteen species; two of which are deadly poison—the copperhead and rattle-snake. Among some of the most noted non-venomous snakes of this country may be mentioned the black snake, often larger than the rattle-snake, and which squeezes its victims to death, the moccasin snake of the Southern States, the water-snake, etc. Nearly all snakes are killed very easily, provided they are stuck in the right place. A whip or goad, such as is often used for driving oxen, five or six feet in length and about as thick as a man's thumb, is one of the

best weapons for their destruction. The blow should be struck just back of the head.

The serpents of our country are, however, as a mere nothing in comparison to the monsters of South America, Africa, India, and the other tropical regions. There, in the marshes and swamps, and jungles, they swarm in countless numbers. The gigantic boa constrictor, python, anaconda, rock-snake, etc., are among the largest and most powerful of the serpent tribe; some of which have been known to measure thirty or thirty-five feet in length. The largest snakes are, however, not poisonous. The huge boas coil themselves in the branches of a large tree near a spring of water, and as the unsuspecting antelope or buffalo comes near to drink, they descend upon them and quickly envelope them in their folds. Nothing can withstand their powerful pressure. A traveler tells us that he has heard the bones of the buffalo crack like guns at every fresh turn of the encircling folds as they crushed the huge carcass to a shapeless mass. They then cover it all over with saliva, and for sometime are engaged in the operation of swallowing it. After this they generally lie in a semi-torpid state for days together, when they can easily be approached and destroyed. Terrific conflicts sometimes occur between these monstrous serpents and other denizens of the forest; and even man has been obliged to battle for his life in the dread encounter with this formidable reptile.

The tropical regions also abound in poisonous snakes; prominent among which is the fatal naia haje of Africa, and the terrible cobra-de-capello, or hooded serpent of India. The latter is often destroyed by the mongoose, or Egyptian ichneumon, an animal little larger than a cat, which its poisonous bite does not destroy. The same little animal also destroys crocodile's eggs in great numbers. In the jungles of India a snake is found, often not more than three or four inches in length, a mere worm in size, so exceedingly poisonous that the victim of its deadly bite is said to die within the hour. The East Indian jugglers and serpent-charmers handle the most venomous serpents with impunity, often startling the uninitiated with their perilous and daring feats and performances. The secret of their art is generally unknown to foreigners.

Salt Lake.

BY CAPTAIN CARNES.

During his explorations, Fremont thus describes Salt Lake:

"We reached the Butte without any difficulty, and ascending to its summit we beheld, immediately at our feet the object of our anxious search—the great Inland Sea, stretching in still and solitary grandeur far beyond the limit of our vision; and as we looked over the lake in the first emotions of excited pleasure, I am doubtful if the followers of Balboa felt more enthusiasm, when from the heights of the Andes they saw, for the first time, the great Western Ocean. * * * It was a noble terminus to this part of our expedition; and to us so long shut up among mountain ranges, a sudden view of these silent waters had something sublime in it. Several extensive islands raised their high, rocky heads from the waves; but whether they were wooded or not we could not tell, as their distance forbade us anything more than making out the dark outlines. During the day black clouds rose over the mountains to the westward, and a storm burst over us in sudden fury, and hid the islands from sight."

Later he goes on:—"To-night there was a brilliant sunset of golden, orange and green, that left the western sky pure and clear."

It was September 6th, yet he says:—"The summer frogs were singing around us," and he speaks of their pleasant fancies around the camp-fires. Would they find springs of soft, clear water, and wild game to feast them after their long privations?

During the next day they moved loiteringly down one of the river outlets, which in many places was very shallow, and encamped for that night among rushes and willows, where, over their driftwood fire, they cooked their supper of game, shot during the day. He says that the mild stillness of the night was full of echoes from thousands of water-bird voices; but with early morning they prepared to launch their India-rubber boat. They waded along, dragging their boat, and for some distance out found the water quite fresh, with an insipid taste; but a mile from shore a black ridge was visible at the bottom, beyond which was firm sand. Here the water very suddenly deepened and was found to be salt. While they could touch bottom with the paddles the party was gay, but as the lake deepened, and their frail craft began to feel and respond to the swell of the waves, a change came over them. Patches of foam drifted by, showing a southerly set of the current, and recalled disagreeable tales of whirlpools which had been related to them by Indians and guides. The

waves were of a beautiful bright green hue, and the spray thrown into the boat became a crusting of salt. Ere long, the waves show gouts of foam, breaking under the force of a strong wind, and as they neared the islands they found the cliffs whitened and crusted with salt. They ascended a bare, rocky peak, 800 feet above the lake, from whence they could view a vast expanse of water laving the silent shores. The scene was solemn and impressive.

Upon the island they encamped for the night, and kindled a huge fire of driftwood. The evening was pleasant; but as the night advanced a heavy wind arose, and the waves broke with a jar and roar against the island, which trembled with the concussions.

What a weird scene! What a strange sensation must have been theirs, as travelers for months, toiling up mountain fastnesses, and winding down through defile and valley, to now hear the boom and roar of an ocean surf. The morning showed them a dark and agitated sea; but they had to attempt returning over the rough and dangerous way, while the wind roared in a gale, and the farther they went from the island the rougher they found the water, so that their joy can be imagined when they found that by severe labor they were nearing the shore, and lessening the chances of being blown beyond the island reaches of this unknown sea. A general shout went up from the party when the unstable and unsafe boat came into shoal water and safely landed. Here packing their accoutrements they prepared to push on toward the Columbia River.

Discovery of Neptune.

BY B. C. MORSEBEE.

Seldom in the history of any science is so remarkable an achievement recorded as that which is recorded in Astronomy concerning the discovery of the planet Neptune. The scientific wonder—for I can call it by no other name—which comes nearest to this in point of magnitude is the description, and—as after discoveries proved, the accurate description—of an extinct species of fish with only the aid of an impression of a single scale—which was done by Agassiz. Yet wonderful as this last may be, when compared with any other scientific work, it may be considered of comparative insignificance, when compared with the discovery of Neptune.

Previous to the year 1781, astronomers had noticed certain irregularities in the orbit of Saturn, then supposed to be the boundary of the solar system. In that year, Sir William Herschel accidentally discovered the planet, which for a time bore his name, but was afterwards changed to Uranus. The discovery of this planet explained all of the irregularities in the orbit of Saturn, but when Uranus had nearly completed its revolution around the sun, irregularities were discovered in its orbit, which caused astronomers to suspect the existence of a planet superior to Uranus.

Accordingly, a Frenchman named Le Verrier, set himself to work to discover it. He first prepared exact tables of the planetary movements, and then commenced his calculations. He succeeded so well that in a few months, or to be exact, in September, 1846, he wrote to his friend, Dr. Galle, of Berlin, requesting him to direct his telescope to a certain part of the heavens, where he suspected the stranger to be.

His friend complied, and on the first evening of examination discovered within less than one degree of the predicted place, a strange star of the eighth magnitude. The next evening it was found to have moved with a velocity, and in a direction very nearly the same that Le Verrier had calculated.

What, then, shall we say of a science that enables its devoted followers to reach out into space and feel successfully in the dark for an object more than twenty-eight hundred millions of miles distant? Yet so exact is astronomical science that Le Verrier not only pointed out the place where it would be seen on a given hour, but even predicted the length of its year, which is equal to one hundred and sixty-four of our years, ascertained its distance from the sun, the direction and velocity of its motion, its size, and its density, and this, too, before it had been seen by a single human eye.

It was subsequently ascertained that Mr. Adams, of England, had been engaged in the same computations, and had arrived at nearly the same results as Le Verrier.



FRISKY AND FLOSSY.

BY MARY WILEY.

Now listen, my dears, said a wise mother mouse;
I'm going to market, so don't leave the house.
A little old box was the house which she meant,
Where they lodged the year through without taxes or rent.

There's danger abroad in many a shape,
Which should you go near, you'll never escape;
For instance, there's always that worrying cat;
She never sleeps soundly; and, then, there's the trap!

Two schemes of the envious housewife, you see,
To shorten the lives of you, pets, and me.
The cat is much petted, and roams where she will,
And the trap with choice bait sits under the sill.

Besides, I've seen water and milk stand around,
Which should you fall in you surely will drown.
But to name every danger would take me all day,
And the sun being high, I must hurry away.

Only heed what I've said, and rest at your ease,
While I go for some bread, some meat, and some cheese.
She hurried away, but not without fears,
For she was a mouse of experience and years.

But Frisky was always inclined to be naughty.
Her mother, she said, was too proud and haughty
To mix with the world or chat with a neighbor,
Her life being nothing but worry and labor.

She yawned and complained she had nothing to do,
Said the day was too long to ever live through,
And begged of pet Flossy, her sly little sister,
So hard to go walking she could not resist her.

Oh! Frisky, how can you! grave Flaxy cried out,
And through fright and vexation jumped wildly about.
But Frisky and Flossy were soon out of sight,
They'd hurry, they said, and get back before night.

They tripped along lightly, soon losing all fear,
Nor ever once dreaming of danger quite near.
Oh, dear, what is that? Flossy suddenly cries!
I'm afraid it's the cat. Oh, what terrible eyes!

They ran from her sight, and crept under the sill.
They would stop awhile there, and keep very still,
They said, till that horrible, terrible cat
Should return to her sleep on the fire-hearth mat.

A long time they sat, two forlorn little mice.
Then Frisky said, softly, she smelt something nice,
And looking around, saw the prettiest house,
Just built, she believed, for some dear little mouse.

Then, carefully peeping, saw cheese hanging in it,
Which she was sure she could get in less than a minute;
But, Frisky, you know mother spoke of a trap,
And did she, I wonder, mean something like that?

Too late came the warning as in went her head,
And in less than a minute gay Frisky was dead.
Poor Flossy was dumb with fright and despair,
And thought *she* should die right then and there;

Then, hearing a noise, started wildly for home,
But soon lost her way, and lay down to bemoan
Her own sad condition and poor Frisky's fate,
Again the noise roused her, but this time too late,

For Kitty was watching this poor little mouse,
Who never got back to that cosy old house,
From which in the morning, so merry and gay,
Herself and bright Frisky had hurried away.

BAINBRIDGE, Pa.

A Peculiar Fish.

The Fish of Paradise is one of the most peculiar of Chinese fresh-water fish. It is small in size, a pale gray in color, and, at first sight, having but little about it to attract attention. As soon as the animal becomes excited, however, the long fins on the back and belly straighten out and assume a rich purple blue tinted with green. The long and fork-shaped tail spreads into a kind of fan, and the stripes upon the sides of the fish become yellow, red, and blue, constantly changing in color. The scales seem to become opalescent, and reflect the light with the greatest brilliancy, while the eyes appear illuminated with a bluish-green fire. The habits of the animal are as odd as its appearance. The males take charge of the young and build the nest. The latter is simply a clot of foam floating upon the water, and is made by the fish rising to the surface and alternately absorbing and expelling air, until a little cluster of fine bubbles, hardly three-tenths of an inch square, is formed. The female then deposits her eggs, which are at once seized upon by the male, who carries them in his mouth to the nest. Then he watches their incubation, carefully guarding and distributing them with wonderful sagacity evenly throughout the mass of foam. When they clot together, he pushes them apart with his nose, and, besides, keeps up a continual manufacture of bubbles until the eggs are lifted up above the water and rest only upon their soft couch. As soon as the embryos appear, his care is doubled. He watches that none escape; and in case some become separated, he chases them, catches them in his mouth, and replaces them carefully in the nests. If one becomes injured, he removes it from the others, and gives it a separate bubble by itself, and apparently nurses it until it regains its strength.

Living on Stilts.

In the sunny lands south of Bordeaux, the shepherds have adopted the curious habit of walking upon stilts. The first time that a group of these people are seen, there is a curious emotion in the mind as of a strange prodigy. Dressed in sheep-skins, worn by time, knitting stockings or spinning thread, they pass over reeds and furze; the spectator buried as it were in the bushes, they lifted nearer the sky on the verge of the horizon. The long stick which they handle with so much address, serving as a balancing pole or a support for the arm, contributes still more to the strangeness of their appearance; they look like gigantic crickets preparing to spring. In the lands of Medoc not only the shepherds but everyone uses this style of locomotion; the children have no fear, and the women, who are invariably dressed in black, resemble large ravens perched on dead branches.

Grotesquely mounted on these borrowed legs, the shepherd watches over his charge, concealed in the brushwood, crosses uninjured the marshes and quicksands, fears not to be torn by thorns or dry twigs, and can at any time double the speed at which he ordinarily walks. Whether it has any effect on the character cannot be decided; but certain it is that these people are distinguished by their wild, savage nature. They have a horror of strangers, and if they perceive a traveler coming toward them they hasten to flee into concealment.

In the lives of the saddest of us there are bright days when we feel as if we could take the great world into our arms. Then come the gloomy days, when the fire will neither burn on our hearths nor in our hearts, and all without and within is dismal, cold, and dark. Believe me, every heart has its secret sorrows which the world knows not; and oftentimes we call a man cold, when he is only sad.

LONGFELLOW.

THE TRIUMPHS OF SCIENCE;

OR THE

Raising of the Great Britannia Tubular Bridge.

In the present state of human knowledge, the fountain-head of mechanical power is water. It drives the loom, it turns the mill, and within it the motive power of the steam engine originates. The steam that arises from it becomes the herculean power that carries us from continent to continent in ten days, and from ocean to ocean in six. In the time to come, electricity may, and probably will be, the leading motive power of the world; but as yet we have not been able to handle it as understandingly as we can water, and probably many of its leading principles are shrouded in mystery. Water, however, we have put to a thousand uses; and in many places it has displayed its mighty power in a manner well calculated to fill the mind with wonder and amazement. How few there are who fully realize the silent power existing in the rain drop that falls unnoticed at our feet, or the little brook that ripples on by our side.

Now, I am not one who would have you believe all the stories about the "Keely Motor," and other miraculous powers that have appeared in the columns of the sensational papers within the last year or two; yet I would say receive not the reports of the most sanguine and enthusiastic inventors with ridicule. Their lives have been given to the object—yours have not; and besides, the time has arrived when we may at any time expect startling discoveries from the army of scientific searchers after truth that now fill the grand empire of science and enterprise. Remember how the first efforts of Columbus, and Fitch, and Harvey, and Fulton, and Watt, were received; and yet their genius, with the aid of indefatigable perseverance, has placed them at the head of the shining lights of the world. Although the efforts of Mr. Keely will quite likely be unsuccessful, it is, nevertheless, a step in a direction that other inventors, perhaps long after he is dead and gone, may take advantage of, and by a hint from an unfinished machine, startle an unthinking world with a wonderful discovery.

It is a fixed principle of hydrostatics that an amount or quantity of water, however small, may balance a quantity however great. This at first appears absurd; and has, therefore, been denominated the hydrostatic paradox. The secret of it is: the downward pressure of water is not according to the mass or quantity, but according to the vertical height. Take a strongly hooped cask, or cider barrel, and fill it with water, and insert a vertical tube, thirty or thirty-five feet long, in the top. Fill the tube with a small quantity of water, and even though the bore be no larger than a pipe-stem, holding no more than a quart or two of water, the cask will be burst by the operation; for the pressure upon it is equal to what it would have been had the tube been of the same diameter as the barrel. Jack-screws have been invented for raising buildings, etc., and with them whole blocks of heavy brick edifices have been elevated. Capstans and pulleys have been invented, and with them ponderous masses of stone and iron have been raised. But the hydraulic press, worked by the pressure of water, eclipses them all. Imagine a strong upright iron cylinder, partly filled with water, within which works a closely fitting piston, the end area of which is a thousand square inches. Parallel with this we will suppose a small tube, fifty inches in height, bent at the bottom and inserted into the large cylinder below the piston, in order to give free communication for the water, the end surface of the interior of the small tube being only one square inch in area. If the large piston is not allowed to press upon the water in the cylinder, the water will instantly find its own level in both the cylinder and tube; and hence an inch of water in the tube balances a thousand in the cylinder. If the piston is allowed to descend in the cylinder, it will force the water out through the top of the tube, providing it be not too high. On the other hand, if a small piston be inserted into the tube, and pressed downwards to the bottom, forcing the fifty cubic inches of water into the large cylinder, the water will be raised there, forcing up the large piston one-twentieth of an inch. If there be twenty-five inches of water in the tube, and the same depth in the cylinder, the cylinder will contain 25,000 cubic inches; and in this case the twenty-five cubic inches in the tube, weighing only about a pound, balances the 25,000 cubic inches in the cylinder, weighing about a thousand pounds. If the small piston be driven downward with a force of one hundred pounds, it will force the large piston upward with a force of a hundred thousand pounds, or fifty tons; and if the downward pressure upon the small piston be a thousand pounds, the upward pressure upon the large one will be a thousand thousand, or five hundred tons; but in either case the large piston will be raised only the fortieth of an inch. The larger the surface of the water in the cylinder, in comparison to that in the tube, the greater the power and slower the lifting motion. Such is the principle of the famous hydraulic press—the most powerful machine ever invented by the hand of man. Indeed the only limit to its power is the strength of the material of which it is composed.

Perhaps the mighty power of the hydraulic press has never been more strikingly displayed than in the raising of the celebrated Britannia Tubular Bridge. This famous structure spans the Menai Straits; a narrow passage of water connecting the Irish Sea with St. George's Channel, and separating the Isle of

Anglesea from the Carnarvon shores of North Wales. The noted Menai Suspension Bridge had been built some time; and now the rapid progress of steam locomotion was demanding a passage way across the ever foaming waters from cliff to cliff. At first it was proposed to appropriate one side of the suspension bridge for this object; but this plan was found to be impracticable. A new bridge must be built; strong enough to sustain the heavy loaded train, as it passed with undiminished speed across the "great tidal chasm," on its aerial trip from shore, above the tallest ship mast. It was a gigantic work. Who would dare undertake the task? Robert Stephenson, son of the illustrious George Stephenson, of locomotive fame, was the man for the occasion. He proposed a bridge of two cast-iron arches of 450 feet span, each arch to commence 50 feet above the surface, and be 100 feet high in the centre. Its cost he estimated at £250,000, or \$1,250,000. The plan he carried to the Admiralty was found to bespeak one of the most elegant structures ever erected by human hands, and yet it was rejected.

The great engineer went away with bowed head, though nothing daunted; for he felt that the resources of his own mind was yet adequate to the work. It should still be constructed of iron; it was his favorite material. Ere long his new project was matured. He would construct enormous iron tubes, or tunnels, 462 feet in length, through which the railway track might be laid, the whole of which was to be elevated and supported upon three lofty stone pillars. Having completed his design, and satisfied his own mind that such a structure would be strong and durable, he called in several of the more eminent English engineers to aid him in making estimates of cost, calculating the strength of material, and best form for the tube. A long series of laborious and costly experiments followed. Small tubes were made of different forms, and their strength tested; and at length the problem was solved, and the proposed plan approved.

Laborers were called from all parts of the kingdom, and arrangements speedily made for the erection of the colossal structure. Piles of masonry were quickly raised on either shore, to the height of 160 feet; while upon a rock in the centre of the straits a strong tower was commenced. The outside of the tower was composed of 148,625 cubic feet of Anglesea marble; and the inside of 144,625 cubic feet of sandstone. 387 tons of cast iron girders and beams gave it additional strength; and when it was completed it formed one of the greatest bridge piers in the world. Its base is fifty feet square, embedded in pure Roman cement, laid on a solid rock foundation; its weight upwards of 20,000 tons, and its altitude or height no less than 230 feet above the surface of the water. It was intended to crown this great central tower with a beautiful statue or figure representing science; which was to have been fifty feet in height, and composed of 17,000 cubic feet of stone. The rapid depreciation of railway property, however, caused the directors to abandon this magnificent ornamental design.

On each side of the land ends of the two abutments is a beautifully executed couchant stone lion; resembling those of the ancient ruins of Egypt. Each one is 25½ feet long, 12½ feet high, 8 feet wide and weighs 80 tons. 8,000 cubic feet of limestone were required for the formation of the four. 570,000 cubic feet of timber was used for scaffolding, in erecting the towers, piers and abutments, while the quarries from which the stone was obtained extended along the Anglesea shore for more than twenty miles.

Meanwhile preparations had been made for the construction of the tube. An immense timber platform had been built, and along this were piled rows of huge iron plates, three-fourths of an inch in thickness, two feet wide, and from six to twelve feet long. All was now animation and activity. 1,500 men were at work, and a mushroom city extending along the shore for half a mile was the result. Shanties, cottages, sheds, boarding houses, workshops, and engine houses covered acres of ground. The scene has been thus described by a correspondent of the *London Visitor*: "The spectacle which was presented during the progress of the work was novel, interesting and impressive. Shiploads of iron, constantly arriving from Liverpool, of Anglesea marble from Penmon, of red sandstone from Runcorn, and forests of timber from various ports, discharged their cargoes at the wharves and platforms; and wagons and carts incessantly traveling in all directions on tramways and roads, combined to form a remarkable spectacle; while vast clouds of dark smoke, issuing from chimneys; steam engines always at work, pouring forth volumes of steam high into the air; the whirring of machinery, the explosion of gunpowder, the thunder-like clang of the blacksmith's hammers at the forges, and the reverberation from those at work along the tubes where the rivetters were securing the plates, formed a chaos of sights and sounds which it is easier to conceive than to describe."

Every part of the work was carefully inspected by the ever vigilant eye of the great engineer. Even the iron plates which appeared so true and uniform were not allowed to be placed in the tube until they had passed between two massive iron rollers worked by steam power, that every little hump or bunch might be squeezed down to a perfect smooth surface. The holes for the rivets were made by a strong punching machine, working a steel bolt with a pressure of from sixty to eighty tons; perforating the iron plates as though they had been mere paper. Two millions of rivets were used, weighing about 900 tons, and requiring 126 miles of iron rod for their construction. The constant clang of the heavy hammers heading red hot rivets made a confused din that seemed to jar the atmosphere from morn till night. So strongly were these made that each

one would sustain a force of six tons before it would give way.

At length the great tube was finished, and everything made ready to convey it to its final destination. All nations knew of the event, and people from France, and Germany, and Austria, and the United States, gathered by thousands to witness the display of the power of science. Special trains from all directions came loaded with human freight, to swell the vast concourse that already gave to the whole vicinity the appearance of one vast encampment. A large number of seats had been constructed for a long distance along the shore, affording a fine view of the straits and of the field of operations; and these were loaded with thousands, while thousands more stood further back, unable to obtain a seat. The hotels and boarding houses in all the neighboring towns were full, and further accommodation was out of the question. It seemed as if swarms had arrived from every clime and nation, with hearts beating anxiously to witness the unparalleled achievement.

A portion of the wooden platform had been cut away from the ends of the tube, a dock arranged, and at each side four pontoons had been sunk, each 25 feet wide, 11 deep, and about 100 feet long. Their combined floating power amounted to fully 3,200 tons. Chains, and ropes, and immense hawsers of great strength were attached, running off in all directions, over pulleys, and shafts, to great capstans, worked by hundreds of men. At the appointed hour a hundred seamen took their places on board the different vessels and nine hundred others assumed their several posts elsewhere. The ponderous iron tunnel was drawn forward—the valves of the sunken pontoons were closed, and they rose to the surface like the shoulders of Atlas to receive their monstrous load. The huge mass was afloat; and in a short time thereafter it was conveyed to the foot of the towers, when the pontoon valves were again thrown open, allowing them to sink, while the tube slowly descended to its prepared place.

Mounted upon the summits of the lofty towers were enormous hydraulic presses weighing forty tons each. The solid cast iron of the cylinders were no less than eleven inches thick; and it was estimated that if it was used as a forcing pump, one of them would be powerful enough to throw water in a vacuum five and a half miles high. The lifting force amounted to 2,622 tons. Connected with the top of the piston of the great Bramah press was a horizontal iron beam, from the extremities of which hung two enormous iron chains, weighing a hundred tons, by means of which the tube was to be lifted to the place of its destination. A maze of huge chains, and hawsers, and ropes, ran off in different directions, over pulleys, and around heavy shafts connected with capstans and windlasses, to steady it and keep it straight.

Everything being prepared, the word was given and the steam was applied to the two forty-horse steam engines to work the presses. Slowly the great piston began to emerge from the cylinder—there was a creaking of ropes, and clinking of chains as they were drawn to a powerful tension—and then the mighty mass, weighing no less than 1,800 tons, left its bed and began slowly to move upward. It was a grand triumph of science, and for the moment every voice was hushed, and the multitude stood in silent amazement before the wondrous display of the power of water and the hydraulic press.

In a few minutes it had been elevated six feet, and then it stopped. The cylinder was full of water, and its power for further elevation was at an end. It was now firmly secured by heavy timbers and blocks of stone, and then the power that worked the press was taken off. The ponderous piston descended, the water was forced back through the upright tube, and again was the machine ready for a new lift. The engines were set in motion, and again was the great tube hoisted six feet higher. Again and again was this operation repeated, and at length it had reached an elevation of thirty feet. So great was the pressure upon the cylinders of the presses that the water was forced through the pores of the iron and stood all over the outside like dew or sweat. All at once there was a sharp explosion. The cylinder of the largest press had burst; and a piece of solid iron weighing three thousand pounds had been blown off. The immense tube fell suddenly through a space of seven inches, striking the timber and masonry that had been built up from underneath as it had been raised. There was a fearful fall, but no serious damage was done; and as soon as a new cylinder could be constructed the work went on as before.

The final lift of the first tube took place on the 13th of October, 1849. Others soon followed, and on Tuesday, the 5th of March, 1850, three powerful locomotives, weighing ninety tons, gallily decorated with the flags of all nations, and conveying the celebrated engineer and other distinguished men, swept across the threshold and through the center of the stupendous fabric. It was, indeed, a grand triumph of science that will long remain a monument of fame to its illustrious founder, Robert Stephenson, England's great engineer.

Its dimensions when finished was 1,513 feet in length, 26 in height, 14 in width, and its elevation was more than 100 feet above high water. The weight of the iron in the tubes alone was over 10,000 tons, and 1,400,000 cubic feet of masonry exists in the piers, abutments and wing walls. Its cost was £500,000, or \$2,500,000. The Victoria Tubular Bridge across the St. Lawrence, at Montreal, is a similar structure on a more extensive scale.

Lately the power of the hydraulic press has been even more strikingly displayed. Among its more powerful achievements may be mentioned the launching of the Great Eastern, weighing 12,000 tons.

Some Curious Flowers.

BY BESSIE LEE.

What wonderful plants and flowers have bloomed and died in obscure quarters of the globe, unnoticed but by the eye of their Creator. Many more have been known and passed by unheeded by unappreciative observers. A gentleman lately saw in Turkey a flower of most exquisite beauty, which was a perfect representation of the humming bird. This fairy creature has often been called a winged flower; but here was the bird itself transformed into a blossom and growing on a stem. The breast was of a bright emerald hue, the two outstretched wings of a deep rose color, and the throat, head, and even eyes, were a perfect copy of the bird. The lower part was of deep brown tint, and here the seeds were found.

Florists and gentlemen of means and leisure often spend a great deal of time and labor in raising new species of well-known flowers. An English gentleman has succeeded in producing a curious geranium; the flowers, stem and leaves of which are all white like transparent wax. He estimates its value at a thousand pounds.

The night blooming jasmine is a curious flower. By day you might pass the humble shrub a dozen times without notice. The greenish yellow buds look as unpretending as a row of tiny candles, and are entirely scentless. But when evening comes on, the little candles are all alight with beauty, and send forth a perfume as delicious as precious censers. With the dawn of day, they begin to contract and to gather up their delightful fragrance, shutting it up in some mysterious, hidden casket, and they prepare for a long sleep while others are awake and stirring. Regular aristocrats are these little blossoms, which thus turn night into day and day into night. The evening primrose has a similar fancy, and opens its petals at sunset with a snap, like a very mild type of torpedo.

Japanese Dentistry.

An American dentist, living in Yokohama, sends to the *Dental Cosmos* an account of the Japanese habits in regard to their teeth. He says that, as the young women have very fine teeth, it is remarkable that they should keep up the bad practice of blacking them after marriage. The Japanese, as a race, possess good teeth, but they lose them very early in life. "Their tooth brushes consist of tough wood, pounded at one end to loosen the fibres. They resemble a paint brush, and, owing to their shape, it is impossible to get one behind the teeth. As might be expected, there is an accumulation of tartar which frequently draws the teeth of old people. Their process of manufacturing false teeth is very crude. The plates are made of wood, and the teeth consist of tacks driven up from under the side. A piece of wax is heated and pressed into the roof of the mouth. It is then taken out and hardened by putting it into cold water. Another piece of heated wax is applied to the impression, and after being pressed into shape is hardened. A piece of wood is then roughly cut into the desired form, and the model, having been smeared with red paint, is applied to it. Where they touch each other a mark is left by the paint. This is cut away till they touch evenly all over. Shark's teeth, bits of ivory or stone for teeth, are set into the wood, and retained in position by being strung on a thread, which is secured on each end by a peg driven into the hole where the thread makes its exit from the base. Iron or copper tacks are driven into the ridge to serve for masticating purposes, the unequal wear of the wood and metal keeping up the desired roughness. Their full sets answer admirably for the mastication of food, but, as they do not improve the looks, they are worn but little for ornament. The ordinary service of a set of teeth is about five years, but they frequently last much longer. All full upper sets are retained by atmospheric pressure. This principle is coeval with this art. In Japan, dentistry exists only as a mechanical trade, and the status of those who practice it is not very high. It is, in fact, graded with carpenters—their word *hadyikhsan* meaning tooth-carpenter."

FLY pride, says the peacock.

SHAKESPEARE.

ECLIPSES OF THE SUN AND MOON,

The science of Astronomy forms one of the most interesting and sublime pages to be met with in the whole domain of the great book of Nature. In the contemplation of the heavens we behold, not leaves, and flowers, and trees, and animals, but we take in at a single view a thousand mighty worlds; whirling and revolving through the boundless realms of space, in accordance with the unchangeable laws of the Almighty Creator of the universe. As we reflect on their immense distances and vast proportions, and speculate on the hosts of animated life they may team with, we realize that our earth is in comparison but as a mote of dust in the sunbeam. Number, and distance, and magnitude, defy our comprehension. We observe that everything works in circles, in periods, and in perfect harmony, without clash or jar, and we gaze in wonder and admiration upon the grand display of the eternal power of God.

As we look back on the dark pages of the world's history, we find people even in the most enlightened nations bowing down to the sun, moon and stars, and worshipping them as gods. If a total eclipse of the sun happened to occur, they believed in their ignorance that the Lord was offended; that He had hid His face, and shrouded the world in darkness; and superstition chained them with mortal fear. Knowing little of astronomy, and the laws that govern the planetary worlds, they looked upon the whole as supernatural; and prostrating themselves, they offered up supplications and entreaties, that the threatened calamity of everlasting night might be averted. At the time of the Peloponnesian war, when the powerful Grecian fleet, under command of Pericles, was preparing to attack Peloponnesus, an eclipse of the sun occurred which threw the whole Athenian army into the wildest consternation. At another time, when the Medes and Persians were arrayed in the habiliments of war, and stood ready for the order that was to usher in a scene of carnage and destruction, the celestial orb was darkened by an eclipse. Alarm seized the hearts of the brave warriors on one short hour before, and laying their deadly weapons upon the ground, both sides came together in friendship, and entered into a treaty of peace.

Thales, one of the seven wise men of Greece, had noticed several facts respecting the periodical returns of eclipses, and he predicted that the sun would be darkened May 28th, 585 B. C. It occurred accordingly; and the Grecian philosopher was looked upon as a prophet; while the war that was then raging between the Medes and Lydians was speedily concluded by peace. Hundreds of instances might be recorded where eclipses have been looked upon by the ignorant and credulous as warnings and forerunners of death, calamity and disaster. Thus the eclipse of the moon that took place July 16th 523 B. C., was thought by many to be the harbinger of the death of the Persian king, Cambyses, which took place shortly afterwards. The solar eclipse of August 31st, 431 B. C., was thought to be the forerunner of the plague at Athens, where thousands were swept into an untimely grave by a horrid disease. On the 30th of April, in the year 59, an eclipse of the sun occurred, which Nero reckoned as among the prodigies which took place at the death of Agrippina. At the capture of Jerusalem by the Saracens, in the year 1009, a total eclipse of the sun took place; thought by the superstitious a sign to express to an unbelieving world the displeasure of the Deity.

A knowledge of the phenomena of the heavens has often been used by designing men to impose upon the credulity of the unenlightened portion of mankind. It was often resorted to in ancient times to impress the mind with fear, in order to secure obedience, and terms in war. We are told that Columbus, when wrecked on the coast of Jamaica, in 1503, made use of his knowledge of astronomy as a stratagem to induce the natives to bring him food to keep off the horrors of starvation, while his men worked on their shattered vessels. Knowing that an eclipse of the moon was about to take place, he summoned the principal chiefs to assemble at a certain spot, and as the shades of evening approached he appeared among them. It was a calm, beautiful evening, and when the full moon arose, in all its splendor, shedding its silvery light over the lovely landscape, the scene was enchanting. At length Columbus arose and spoke: "My people," said he, "have met with misfortune. They have been wrecked and blown about by the angry winds; and now they are suffering from hunger. They have never harmed the children of the forest. They have come among them as brothers, and you refuse them food, when you have an abundance. The Great Spirit you serve looks upon such proceedings with anger. Look! See yonder resplendent orb riding in silent majesty across the clear, blue, celestial dome. Ere the morning dawns it shall be clothed in black darkness." Some received his words with contempt, few believed, and a few noticing his earnestness shook their heads in doubt. At length the time approached, and the black shadow of the earth began to shroud the moon in darkness. Gradually it crept over the face of the round orb, and the queen of night was hid from view. The pleasing landscape was no longer visible. In the obscurity of the night an appalling gloom seemed settling over all. The natives were horror-struck. They were convinced. They believed every word Columbus had told them, and hastening to his famishing crew,

with large quantities of their best provisions, they eagerly besought him to intercede with the celestial Deity, that the curse might be stayed and the moon restored. Columbus retired for some time, telling them he would consult the great supreme ruler of heaven; and when the time had nearly arrived for the moon to emerge from the earth's shadow he came forth and told them he had succeeded. That the curse would be removed; that the moon would shortly come forth from the darkness, and shine as bright and glorious as ever in her accustomed place in the heavens. As the moon once more appeared to view, the Indians clustered around the old astronomer, believing him gifted with supernatural power, and adoring him as they might have adored a god. They promised him faithful obedience forever; and from that hour the crew of Columbus lacked not for food. Thus were the slaves of ignorance often duped by the power of an enlightened and designing mind.

Through patient study and observation, the laws that govern the movements of the planetary worlds were discovered; and the invention of printing carried all that was known to the remotest bounds of civilization. Men consulted no longer an oracle, or an interpreter; they saw, and thought, and reasoned by themselves, and for themselves. The age of duplicity became an age of the past; for a knowledge of science had made the mystery plain. A few facts in regard to eclipses of the sun and moon may not in this connection prove wholly uninteresting.

First let us know what is meant by the ecliptic. If a circle be drawn upon a board, or any other flat surface, the board or other flat surface, whatever it may be, forms the plane of that circle. If a piece of pasteboard be laid across a circular hoop, it forms the plane of that circle. Now the sun is the center of the solar system, around which the different planets revolve. The earth, in its yearly course around the sun, performs a great circle termed its orbit—nearly 190,000,000 miles across. The plane of this great circle, at all times passing through the centre of the earth and sun, is what is known as the ecliptic. The orbit, or path of the moon in its course around the earth intersects the ecliptic at an angle of only about five and one eighth degrees; and these points of intersection, which of course are opposite, or 180 degrees apart, are denominated the moon's nodes. The point where the planet passes *upward* through the plane of the ecliptic is known as the *ascending* node, represented thus \nearrow ; while the point where it passes *below*, or *south* of the plane of the ecliptic, is known as the *descending* node, represented thus, \searrow .

The interposition of the moon between the earth and the sun is what causes an eclipse of the sun; and, therefore, it must happen at the time of the *new moon*; and in order to produce an eclipse the change must occur within seventeen degrees of either of the moon's nodes. An eclipse of the moon is caused by the interposition of the *earth* between the sun and moon, obstructing the sun's rays, and bathing the lunar orb in its dark shadow. The moon, like the earth and other planets, is of itself an opaque or dark body; and when another dark body gets between it and the sun, the source of all light is shut out, and an eclipse is the result. The full moon is always seen in the east when the sun is setting in the west, the earth being *between* them, and therefore a lunar eclipse occurs at the time of *full moon*; but in order to produce an eclipse the moon must be full when the sun is within twelve degrees of either node. Therefore the number of eclipses of the sun are to those of the moon as seventeen to twelve.

The moon's nodes are not always at the same points on the ecliptic, but are constantly moving backward at about the rate of nineteen degrees yearly; hence the eclipses take place, on an average, about nineteen days earlier each year. As the nodes are exactly opposite, eclipses must take place about six months apart. By looking in the almanac for this year, you will find an eclipse of the moon took place March 9th, and another will occur September 3d. An eclipse of the sun happened March 25th, and another will take place September 18th; hence you observe they only lack six or seven days of being six months asunder. If an eclipse occurs in June, there will certainly be another at the new or full moon in December, or last days of November; and if an eclipse take place in February, there will shortly be another at the new or full moon in August, or the last days of July; and if one occurs in May, we may look for another in November; and so on continually.

The least number of eclipses that can occur in any one year are two, and these will both be of the sun. The greatest number are seven; in which case five will be of the sun, and two of the moon; and the moon's eclipses will be total. The usual number are four. The sun is never totally eclipsed to any one place longer than about four minutes; but the duration of totality in an eclipse of the moon may extend to an hour and forty-eight minutes. Although less in number, more eclipses of the moon are visible from any one point than are those of the sun; for a lunar eclipse is visible from a whole hemisphere, while a solar eclipse is only visible over a small region of country. When the moon is eclipsed to us, the sun must be eclipsed to an observer on the moon; and when the sun is eclipsed to the inhabitants of the earth, the earth is eclipsed to those of the moon. An eclipse of the moon always begins on its eastern side and goes off on its western; but an eclipse of the sun begins on the western side and passes off on the eastern. Solar eclipses which take place in March pass over the earth in a north-easterly direction; while those that occur in September pass over in a south-easterly direction. Those which happen in June and December pass over the earth in an eastern direction.

Astronomy is a deep study; and to calculate eclipses with scientific accuracy requires considerable mathematical knowledge; still, they occur in periods of such regularity, that an understanding of these will enable any one to foretell eclipses easily, and with remarkable perspicuity. After 233 revolutions of the moon around the earth, the sun, moon and nodes do not vary half a degree from the same position again. This period embraces eighteen years, eleven days, seven hours, forty-two minutes, and thirty-one seconds, when the last day of February in leap years is four times included; and in this time the same eclipses, or those of the same magnitude, are said to return. Hence, if we wish to calculate or foretell future eclipses, all we need do is to consult some old almanac to find the time of any eclipse in the past, and to this add the above-mentioned period, when we shall have the time of a similar eclipse in the future. Throwing aside the hours, minutes and seconds, and simply adding the years and days, we shall have come within one day of the time, which is even nearer than some of the earlier astronomers used to reckon. On the 18th of July, 1860, there was a large solar eclipse. Add to this eighteen years and eleven days, and we have for time, July 29th, 1878, at which time a similar eclipse of the sun will occur. Again, on the 6th of June, 1872, an eclipse of the sun took place. Add to this eighteen years and eleven days and we find it will return June 17th, 1890. If you happen to have an almanac for the year 1853, which is eighteen years ago, you will find by consulting it that similar eclipses occurred that year to those that occur this year; and furthermore, if you add the days, hours, etc., given in the above-mentioned period, to the times of eclipses given in the former almanac, you will arrive very nearly at the time or date of those given in the almanac for 1876. To tell just where the eclipses will be visible in the future, it is necessary to know where the sun or moon may be shining at the time, and to enter deeper into mathematical astronomy. Enough has been shown, however, to enable the most crude searcher after truth to see that the great laws that govern the mighty works of nature are immutable and unchangeable. That they always have been, and always will be the same while time endures; and that all instruction tending to darken the truth of these well-known laws, and endeavoring to account for such phenomena of the heavens through supernatural agencies, is but the false teachings of ignorance and design.

Scenes in India.

BY CAPTAIN CARNES.

Says a delightful writer: We crossed the Ganges at midnight. Moonlight rested on the Sacred River, but no spice-lamp, set afloat by Hindoo maidens, starred the silvery tide. There was no sound during our passage save the light dip of our oars, and the shores, shaded rather than brightened by the light of the setting moon, seemed hushed in slumberous repose. Once across daylight showed the country. It first was mostly bare of trees; but ere long a warmer and richer scene opened before us. The brab palm spoke of the neighborhood of the tropics. Villages appeared shaded by banyans and other umbrageous trees, while a range of mountains lay blue and distant in the far south-west. Here, as in Egypt, appeared the same rich foliage of the trees, the same green fields of wheat and barley, and the luxuriant patches of blooming poppies. But the atmosphere was different. Here, a glowing vapor, softened by a filmy veil, suggested languor and repose.

Approaching the Saone River we found its waters rolling over a royal bed, but the season of drouth was now upon it and only blue ribbons of water threaded the waste of yellow sand.

Nearing the hilly province of Behor, we found an undulating, uncultivated country; and a chain of mountains in front began to enclose us in their jungles which grew to their very summits. The people were wild and squalid, and different from the races of the plains.

The beautiful sunset among these woody ranges allowed the mellow moonlight to melt so gradually into it, that there was the soothing influence of continuous twilight. The air was balmy and delicious beyond description, and after enjoying it for hours, I was far from being satiated with the scene.

In Egypt the plains were level with mango and tamarind trees; here were the gorgeous West Indian growths. In the gardens of the Europeans the *Poinsettia* hung its long blue streamers from the trees, and the *Bougainvillea* raised its fiery purple blooms; the streets were arched with the peepul tree and the feathery cocoa palm. The bamboo in thickets grew around the native huts, above which towered the bare bough and scarlet lily-cups of the cotton tree.

In the vicinity of Barrackpore I came up to the parade ground, where four or five thousand Sepoys were going through the morning drill.

And now speeding down the grand avenue of banyans

and peepuls we neared Calcutta. On either side of the road appeared gorgeous gardens surrounding palatial residences; beyond these came the bamboo huts with thatched roofs. Presently a muddy moat appeared, which having safely crossed, I felt that forebodings and actual perils were alike past, for safe inside "Maharatta Ditch," in a short half hour's time I was comfortably quartered at the hotel.

Straits of Magellan.

BY J. J. WORTENDYKE.

As these straits are navigated a great deal by our vessels to California, a description of them may be interesting to some.

The straits are about 875 miles in length—their course forming an elbow, or two sides of a right angle triangle. The distance across the land is about 190 miles; Cape Forward being the southernmost point of the South American Continent; the Island of Cape Horn being over 100 miles further south. The straits at the eastern entrance are between six and seven leagues wide, and have from sixteen to thirty fathoms water. The tide on the Atlantic rises about sixteen feet, and on the Pacific about eight feet. The passage is safe for vessels of any size, and the navigation pleasant and easy. There are many safe and commodious harbors all the way through. Wood and water can be procured with ease, and an abundance of fish, and anti-scorbutic vegetables, and birds and deer at the eastern entrance. The land is low on both sides like a rolling prairie. Towards the middle and west it becomes hilly and mountainous, some part of it resembling the scenery of the Hudson river.

The country is well peopled. Near the eastern end of the straits, we saw about 200 Indians on horseback; and towards the western end we were visited by more than a thousand, who were very peaceable and friendly. About 120 miles from the eastern entrance is Port Famine, so named by the English navigator, Cavendish, who in 1585 rescued the only survivor of a colony of 400 Spaniards, who had settled here in 1581 to form a nucleus to protect the Spanish commerce. The place was called Phillipville, in honor of the reigning monarch of Spain. The unfortunate settlers were left without sufficient provisions, and did not pay sufficient attention to their crops. When the place was visited by Cavendish he found only one individual alive, whom he carried to England. All the rest had perished by famine, but twenty-three, who set sail for Rio de Plata and were never again heard of.

Had this colony been composed of such men as emigrated from Old England to our wildernesses, so far from suffering famine, they would have converted Patagonia into a fruitful country, and Phillipville would have in time become a large city. It has a fine harbor, abundance of fish, game, of celery, and the finest trees I ever saw: oak, beech and cedar, five or seven feet in diameter. Some of them would make fine masts for line of battle ships. The valleys are clothed in luxuriant verdure. The clover fields of Pennsylvania, if suffered to go unmowed for a few seasons, would alone furnish a parallel.

I visited the ruins of Phillipville in 1845, and found the fort erected by the Spaniards; it was but slightly decayed, and with little labor could be repaired, and would command the straits. We also made an excursion into the country which was very interesting. In the night I was aroused by a loud roaring, which we afterwards discovered to be a South American lion.

FORCE OF IMAGINATION.—At a large dinner party once, the poet Rogers was speaking of the inconvenience of having windows formed of one sheet of glass. They look as if there is no glass, he said. A short time ago, as I sat at the table with my back to one of those panes, it appeared to me that the window was open, and such was the force of imagination that I actually took cold. Dear me, said Babbage, who sat opposite, how odd it is, Mr. Rogers, that you and I should make such a different use of the faculty of imagination. When I sleep unexpectedly away from home, and consequently have no nightcap, I should naturally take cold. But by tying a piece of black thread tightly around my head, I go to sleep imagining I have a nightcap on, and catch no cold at all.

The Whale and the Whale Fishery.

As the sea or ocean covers about three-fourths of the earth's surface, we naturally look within its depths for the largest of animated beings. Of the whole circle of the known animal creation there is nothing that can compare in size with the whale. There are several species, prominent among which may be mentioned the Little Beaked whale, 20 or 30 feet in length, the Broad-Nosed whale, from 50 to 80 feet long; the common Greenland whale, 60 or 70 feet long; the Sperm whale, about 80 feet in length, and the great Rorqual or Razor-Backed whale, the largest inhabitant of our planet; specimens of which have been known to measure 35 or 40 feet in circumference and over 100 feet in length. The Greenland whale is the kind most sought for, as it yields more oil, and is, therefore, in a commercial point of view, more valuable.

The head of the Greenland whale is from 15 to 20 feet in length and 10 or 12 feet wide. Its enormous mouth 10 or 12 feet high in front and from 12 to 16 feet long, resembles a capacious cavern, large enough, when thrown open, to contain a small sized dwelling house. They have no teeth, but in their place are fringes of a tough elastic substance known as whale-bone. Of this they have about 300 blades on each side, about 12 inches wide where they enter the gum, and often 15 feet in length. The eyes, which are scarcely larger than those of an ox, are situated just above the corners of the mouth. The ears are not visible until the skin is removed, and hence its hearing is very imperfect. On the top of the head are the two nostrils or blow-holes. Through these columns of damp vapor are sent up at every breath. Sometimes two columns of water are spouted forth in the form of immense jets with a noise like thunder, which can be heard at the distance of several miles.

The color of the whale is blackish gray; though the throat and belly are generally white. The skin is about an inch thick, smooth, and free from scales. The tail, unlike that of fishes, is horizontal or flat upon the water. It often measures 25 feet across. This huge inhabitant of the Polar Seas is popularly spoken of as a fish; but in reality there is nothing about it resembling a fish, excepting its outward form. Its blood is warm, which is unlike that of fishes, it breathes by means of lungs, like the land animals, and it brings forth its young alive and suckles them with milk.

In the regions where the whale is found, shoals of minute fishes, molluscous and crustaceous animals, swarm in innumerable hosts, often discoloring the water with their numbers. Upon these the whale feeds. He moves among them with wide open mouth, and millions of the tiny multitudes are engulfed between his ponderous jaws at a single mouthful. The whale-bone fringes act like a sieve, draining off the water, and he swallows his unresisting prey.

Directly under the skin is the blubber or fat, which is from 8 or 9 to 18 inches in thickness. From this the oil is obtained; sometimes to the amount of 150 tons from a single individual.

Before the discovery of gas and petroleum the whale fishery was carried on more or less extensively by almost every civilized nation on the globe. It was practiced by the people of Norway as early as the ninth century. About the twelfth century the people living along the shores of the Bay of Biscay entered the business with a view to commercial profit. They may therefore be justly styled as the originators of the whale fishery. The whales which at that time abounded in those waters were of a small species; and not only was it captured for its oil, but for its flesh also, which was used for food. The first English whaling voyage took place in 1594. Shortly after this the Dutch, French, and Danes took the work in hand, and it soon became a business of no mean pretensions. In 1850 the United States alone employed 600 vessels and about 16,000 men in the whale fishery, some of which were absent in the South Pacific Ocean two and even three years at a time.

Whale vessels are generally built of from three to four hundred tons burden; and if they are bound for Baffin's Bay and the North Atlantic they commonly leave this country so as to reach the field of operations about the 1st of June. The crew comprises forty or fifty men, be-

sides the master and surgeon. Among these are found coopers, carpenters, steerers, line-managers, harpooners, etc. Six or seven boats hang from the side, each of which is provided with at least two harpoons and six or eight lances. None but men of sound health, giant strength and iron nerve dare face the hardships, perils and dangers of the whale fishery. Its pursuit and capture form an exciting scene, not soon to be forgotten.

As soon as one is discovered the boats are quickly let down, and the men taking their appointed places pull silently though swiftly forward. Carefully one of the boats approach to its enormous sides, rising like a huge wall before them. Slowly and without noise the harpooner rises from his seat and takes the weapon in his hand. This consists of a shank with a strong barbed head, each of the two barbs being armed on the inside with other barbs in a reverse position. Attached to the shank is a coil of rope about three-quarters of an inch in diameter and over seven hundred feet in length. A single instant he balances the harpoon in his hand, and then with all his might he strikes the mighty monster of the seas. This is a dangerous moment. Surprised and wounded, he makes a mad, convulsive effort to escape. The oars are plied, and the boat moves quickly backward; and if they are quick enough to escape being thrown into the air or dashed in pieces they are lucky. A moment he dashes the water right and left in his angry writhings, and then he plunges suddenly down into the dark waters of the briny deep. The rope unwinds and runs over the side of the boat with such amazing velocity that oftentimes the harpooner is enveloped in a cloud of smoke. This is caused by friction, and to prevent the sides of the boat from taking fire, buckets of water are dashed upon it and upon the running rope.

Every man must now understand his business, and be ready and quick. As the line nears the end another is instantly attached, and this too speeds away like that before. Great care must be taken to keep clear of the running rope; for should one happen to become entangled within it he would perhaps meet with a terrible and untimely fate. Captain Scoresby, who has made his name famous in connection with the whale fishery, mentions several instances of this kind. At one time one of his men incautiously slipped his foot through a coil of the running line. It fastened around his ankle, and dragging him quickly to the boat's stern, snapped his foot off in an instant. At another time a harpooner engaged in lancing a whale, thoughtlessly cast a portion of the line upon the bottom of the boat beneath his feet. Being severely wounded by a well directed lance, the huge animal darted suddenly downward. The rope beneath his feet began to whirl and spin out with amazing velocity. All at once it caught him by a turn around his body, and like lightning he was hauled to the edge of the boat. "Clear away the line," he gasped; "Oh, dear!" A hatchet was seized and the line quickly cut; but it was of no avail. The poor man was almost cut asunder, and the mangled parts of his body were hurled overboard by the departing line, to find a watery grave.

Sometimes the whale descends to the depth of four or five thousand feet; but he generally rises to the surface again in about half an hour to breathe. The other boats which have been on the lookout hurriedly gather about the spot, and three or four harpoons are quickly hurled into its back. Again he descends, but this time only for a few minutes. As he reappears the men seize their glittering lances and close around their victim. The sharp, glittering steel blades are wielded by powerful hands and with deadly aim, and they are plunged deep to the seat of the monster's life. Great streams of blood spirt forth from his numerous wounds, and the sea for a great distance around is dyed to a crimson hue. He writhes in agony, and his contortions are awful. His ponderous tail lashes the ocean into foam, and woe to the boat that is unfortunately struck by this mighty animal when racked by the convulsions of its dying struggles. Sometimes they are smashed into a thousand pieces, and again they are hurled into the air 15 or 20 feet, descending perhaps bottom upwards, while the men fall into the sea, to buffet with the cold waves for existence. Then they realize the perils of the whale fishery. The shivering men are generally picked up by the other boats, and the battle is continued. Its tail is now reared aloft, and, violently whirling, descends upon the water with an overwhelming force, with a sound like the discharge of a regiment of musketry. As he approaches

dissolution water and blood are blown forth in immense jets from his blow-holes, and the oil that exudes from his fatal wounds rises upon the surface of the bloody water. The ropes, the boats, and the men themselves are drenched with blood. The struggle has perhaps continued for hours, and the men feel weary and exhausted. But the contest approaches the end. Gradually the whale's power weakens, and at length rolling upon his side he breathes his last and succumbs to the power of man. The flags are struck, and lifting their caps the brave whalers give three lively buzzas that ring forth over the ocean, proclaiming the victory.

It is now towed to the ship and lifted up in the water as much as can conveniently be done by heavy tackles. The men now put sharp spurs upon their feet to prevent them from slipping, and walking out upon the vast carcass, with enormous knives in their hands, proceed to cut the blubber into great chunks of a ton or more in weight, which are hoisted on board by means of hooks and tackles. Here it is cut up into pieces of about a cubic foot in size, and stowed away in piles, like ranks of wood or bark, to await the sickening process of "trying out," as it is termed, or extracting the oil. The whale is turned over from time to time as occasion requires by means of a heavy tackle attached to the mast and worked by a powerful capstan. When all the blubber has been cut away and the whale-bone taken out and hoisted on board, the "kreg" or skeleton is cut loose and allowed to sink. As soon as it begins to putrefy the mass rises to the surface, and floating among the icebergs and flocs furnishes food in abundance for birds, bears, and wolves.

Whales have been captured and killed in less than thirty minutes; while at other times the conflict has lasted forty or fifty hours. The average time is probably from two to three hours. If he be near an ice floe when first discovered, he will probably make for it as soon as surprised, often drawing a boat after him through the water at an astonishing rate of speed. If he succeeds in getting under the ice floe he is probably safe from his pursuers. A case of the most determined resistance on the part of the whale is related by Captain Scoresby. It was struck by the harpooners of the "Resolution," of Whitby, June 25th, 1812; and after a long chase broke off, taking with it a boat and twenty-eight lines, the aggregate length of which was 20,160 feet, or upwards of three and three-quarter miles. They soon discovered the animal about two miles away, and straining every nerve they pulled rapidly forward in pursuit. They at length came up with it, about nine miles from where it was first harpooned, and the attack was again renewed. Again it fled; but when it came up to breathe, a mile further on, the men were ready to meet it. Two or three more harpoons were hurled into its back, and then the lances were seized with strong hands and plunged into the vital parts. The struggle was soon over, and their victim, which, after all, was not very large, turned upon its side and floated upon the water a lifeless mass. Eight boats had been engaged in the pursuit, one of which had been lost, together with thirteen new lines. The whole amount of line withdrawn from the different boats was no less than 31,320 feet, or nearly six miles.

TWO BROTHERS named Gaff have established a mammoth hennery in Colorado, ten miles from Denver. It covers about four acres, which is laid out like a village, with streets and avenues, along which are built long rows of houses of various designs. Regular families of hens are assigned to these houses, and it is found that they quickly domesticate themselves without troubling their neighbors. The population of the village is about 2,000, divided closely into social cliques of Brahmas, Cochins, Shanghaes, and Dorkings, and the chief products are eggs and spring chickens. Sundays included, the industrious matrons of the village turn out daily from forty to fifty dozen eggs, which are sold in Denver for from forty to fifty cents a dozen. The brothers Gaff express but a single regret, and that is that they did not found their colony fifteen years ago, when eggs brought \$5 a dozen, and a spring chicken was worth a penny-weight of gold dust.

When the million applaud you, seriously ask yourself what harm you have done; when they censure you, what good.

COLTON.

Sponges.

The fine, soft Syrian sponge is distinguished by its lightness, its fine flaxen color, its form, which is that of a cup, its surface convex, voluted, pierced with innumerable small orifices, the concave part of which presents canals of much greater diameter; which are prolonged to the exterior surface in such a manner that the summit is nearly always pierced throughout in many places. This sponge is sometimes blanched by the aid of caustic alkalies; but this preparation not only helps to destroy its texture, but also changes its color. This sponge is specially employed for the toilet, and its price is high. Specimens which are round shaped, large and soft, sometimes produce very high prices. The fine sponge of the Grecian Archipelago is scarcely distinguishable from that of Syria, either before or after being cleansed; nevertheless, it is weightier, its texture is not so fine, and the holes with which it is pierced are at once larger and less in number. It is nearly of the same country as the former—in fact, the fishing for it extends along the Syrian coast as well as the littoral zone of the Archipelago and Barbary. The fine, hard sponge, called Greek, is less sought for than either of the preceding; it is, however, most useful for domestic and for certain industrial purposes. Its mass is irregular; it is of a yellowish color; it is hard and compact, and pierced with small holes. The white sponge of Syria, called Venetian, is esteemed for its lightness, the regularity of its form, and its solidity. In its rough state it is brown in color, and of a fine texture, compact and firm. When cleansed it becomes flaxen colored, and of a looser texture. The orifice of the great channels which traverse it are rough and bristly. The brown Barbary sponge, when first taken out of the water, presents itself as an elongated flattened body, gelatinous, and charged with blackish mud. It is then hard, heavy, coarse, and of a reddish color. When well washed in water it becomes round in shape, still remaining heavy and reddish. It presents many gaps, the intervals of which are occupied by a simous and tenacious network. It is valuable for domestic use, because of the facility with which it absorbs water, and its great strength. Other sorts of sponges are very abundant. The blonde sponge of the Archipelago, often confounded with the Venetian; the hard Barbary sponge called gelina, which only comes by accident into France; the Salonica sponge is of middling quality; finally, the Bahama sponge, from the Antilles, is wanting in flexibility, and is a little harsh, and so is sold at a low price, having few useful properties to recommend it.

Telescopic Views of the Moon.

By means of a good telescope a very distinct view may be obtained of the moon. With a power of 1,000 we are, as it were, brought to within 239 miles of its surface, and on very favorable occasions a power even higher than this has been applied. With the highest power, however, yet employed, no trace of any inhabitants has been discovered, though any large towns must have been seen, did such exist on the visible side. Even to the naked eye the moon presents the appearance of a rugged and uneven surface, and telescopic observation confirms this opinion. We find that in many parts of its surface very high mountains exist, and the elevation of many of these have been measured by observing the shadows cast by them when the sun shines obliquely. At the time of full moon these shadows, that have hitherto been so conspicuous, disappear, as the sun then shines vertically upon them. Very accurate maps have now been drawn of the moon's surface on a large scale, and the principal mountains have received names, usually those of celebrated astronomers. One peak, named Newton, is found to have an elevation of nearly 24,000 feet, and several others are very lofty.

THERE are few defects in our nature so glaring as not to be veiled from observation by politeness and good-breeding.

STANISLAUS.

Melancholy sees the "latter end" of things—things as they will be, and not as they are. It looks upon a beautiful face, and sees but a grinning skull.

Do not be frightened away from any pursuit because you have only a little time to devote to it. If you can have nothing more, a smattering is infinitely better than nothing.

THE ESCULENT SWALLOW

OR;

BIRDS' NESTS AS FOOD.

In Canton, China, whole streets are occupied by vendors of birds' nests, a dainty which, rendered in soup and jelly, is regarded a most delectable morsel. This nest is the size of a small tea-cup, and weighs scarcely a half-

its family. A million and a half dollars are annually expended by the Chinese for this luxury, and hundreds of men spend their lives in the perilous work of collecting the nests from the deep caverns, frightful cliffs, and overhanging rocks.

Edible birds' nests are found for the most part in the Southern Archipelago. The chief region of supply is that comprising Java, Borneo, Celebes, and the Sulu Islands. The bird which produces the nests is a little swallow, *hirundo esculenta*. This esculent swallow, as it is called, is slightly bigger than a blue



THE ESCULENT SWALLOW AND ITS NEST.

ounce. It is of creamy whiteness, and fetches twice its weight in silver. This is the first nest, and is made of a gelatine produced from the body of the bird. When the rapacious hunter turns out the homeless bird and bears off the prize, the little architect, being unable to secrete sufficient gluten for another, mixes in sticks, feathers, and dried grass. These also find a market at a much lower price. The third and last nest being comparatively worthless for food, the poor little builder is allowed to retain possession and rear

tit; it has a brown back; but the under surface of its body, as also the extremities of the feathers in its forked tail, are white. Our illustration gives a very correct idea of the swallow and its nest. It flies with wonderful speed and precision; and on the Java coast, where the surge breaks wildly against the precipitous and caverned walls of rock, the little birds may be seen in swarms darting hither and thither through the spray. They probably feed on fragments of molluscs and other small animals

which abound on those coasts. As you watch the surface of the water rising and falling, you notice how the holes in the rock are now concealed, now open again; and the little creatures, watching their opportunity, dart in and out with lightning speed. Their nests are fixed to the arched roof of these caverns.

What sort of a thing, then, is the edible bird's nest that ministers to the taste of the luxurious Chinese? It is that portion of the fabric which serves as a sort of bracket on which the nest itself (made of grass, seaweed, fibers, small leaves, etc.) is built. There are two forms of this support, one flat like an oyster shell, the other deep and spoon-shaped. It is a transparent mass, somewhat like isinglass, mother-of-pearl, or white horn, and is of animal origin. It was formerly supposed that this gelatin-like mass might be prepared in the bird's crop, from seaweed and other marine plants. This, however, is a mistake. If one opens the animal's stomach about the time of building, it is found to contain insects, but no vegetable matter; moreover, in all species of the family of swifts, the crop is wanting. Dr. Bernstein has found that at that season the salivary glands under the tongue are enormously developed. On opening the bill, they are seen as two large swellings, one on either side, and these chiefly supply the material in question. They secrete a viscid mucous substance, like a concentrated solution of gum arabic, which can be drawn out of the mouth in long threads; and in the air, it soon dries, and is found to be the same as the bracket material.

When one of the little birds wishes to begin building, it flies repeatedly against the selected spot, pressing each time a little saliva against the rock with the tip of its tongue. This it will do from ten to twenty times, moving away not more than a few yards in the intervals. It then alights, and arranges the material in semicircular or horseshoe form on the rock, continuing to add saliva; and by the motions of its body from side to side, the yet soft saliva is forced out over the harder parts, producing those peculiar undulatory bands which give the nest a stratified appearance. It is thought not unlikely that part of the secretion used by the bird comes from the largely developed glands in its stomach, also, that gelatinous matter picked up in the surge are employed in the construction of its nest. The Esculent Swallow never uses the same nest more than once, and that for only a month; and after the young brood is flown the nest soon decays and falls to pieces.

We have now to consider the adventurous work of gathering the nests. Crawford states that none but those accustomed to the dangers it offers can pursue the occupation of collecting these nests; for they are only approachable by a perpendicular descent of many hundred feet, over a sea rolling violently against the rocks. When the mouth of the cave is reached, the perilous task of taking the nests must be performed by torch light, by penetrating into the recesses of the rock, where the slightest slip would instantly prove fatal to the adventurers, who can see nothing below them but the turbulent surf, making its way into the chasms of the rocks. The high price given for these delicacies is, however, a sufficient inducement for the gatherers to follow this dreadful trade.

The plucker, with nothing on but a cloth round his loins, and with a knife and a netted bag at his side, takes his place on a stage (of two crossbars) fastened to the end of a rope, and is let down against the face of the precipitous rock. With the left hand he grasps the rope; in the right he has a rod, with which he holds himself as far as possible from the rock. Thus he descends, often several hundred feet, amid the roar of the breakers and the swarming of innumerable birds. When he has come opposite a swallow hole, he makes a signal, and the lowering is stopped. He now sets himself swinging—and here follows the most dangerous part of the operation—gradually increasing his width of swing, till he thinks he will be able to leap off into the hole, and find foothold on a part of the rock which he has previously noted.—Should the venture fail, death is certain. The man has generally a thin cord fastened round his body, connected with the rope, so as to enable him to pull the stage to himself again. Sometimes, though rarely, this breaks, and then

there is nothing for it but to make a bold spring out towards the dangling stage. But so fearless and practiced are the men that they generally accomplish this fearful leap successfully, even when laden with their booty. When the plucker has got safely into the hole, he cuts off the nest with his knife, and puts them in his bag; for those high up, he uses the rod with the knife fixed to the end of it. The operation demands great address; the slippery rock, perhaps, hardly affords standing ground, and the man will cling with hand and feet to the little cracks or projections, while the alarmed birds flit to and fro in the gloom, and the tumultuous water beneath flashes with phosphorescence. The plucker, however, knows his work; and when he is sufficiently laden, he draws the stage towards himself, mounts it, and is pulled up by his companions. Thereupon, another repeats the operation.

As the method just described is both a dangerous and a slow one, the natives adopt, when possible, another, which consists in fixing a rope ladder from the top of the rock down to the cavern, and also a sort of hanging bridge of rope within the cavern, either running round the wall or passing across. The internal surface of the cavern is often greatly pitted by the action of the weather, presenting a spongy appearance, so that it is not difficult to find points for attachment of the ropes. All the young birds and eggs found are cruelly thrown into the sea. The best harvest is in the months of July and August; the next best, in November and December; the worst, in April and May. After they are procured, they are separated from feathers and dirt, are carefully dried and packed, and are then fit for the market. The best sort in China are sent to Peking, for the use of the Emperor. The labor bestowed upon them to fit them for the table is enormous; every stick, every feather, every impurity, whatever is its kind, is carefully removed, and then, after undergoing many washings and preparations, they are first packed in bags of bamboo fiber or palm bast, and the merchants again pack them for the market (after a second assortment) in cases containing a half picul, or seventy pounds. China is the only considerable recipient of these cases; the cases which are brought as a curiosity to Europe and America are hardly worth mention. The greatest trade in birds' nests is done with Canton, the entire import there being reckoned at 168,000 pounds. We may reckon on fifty nests to the pound, so that altogether 8,400,000 nests, or, from three pluckings, the products of 2,800,000 pair of birds, are annually introduced into China. There are, principally, two kinds of nests distinguished in Canton—the mandarin nests, and the ordinary; of the former or perfectly white kind, each pound costs in China twenty to thirty dollars, a quite exorbitant price, compared with that which the nest pluckers themselves receive for the dangerous work, and which is, at the most, only ten to twelve per cent. of the market value. The second quality of nests are sold at half that price. The nests are dissolved in water or broth, and so taken as soup, or are made into a soft, delicious jelly. It is highly spiced with minor substances. This forms an *entree* which is rarely wanting on the tables of the wealthy Chinese, and never from that of the imperial court of Peking. The Chinese set a high value upon it, considering it one of the best stimulants; but for this opinion there seems to be little or no ground. The most recent analysis of the nests we owe to Professor Troschel of Bonn. He finds that the material does not consist of specially nourishing or stimulating substances, but is quite similar in constitution to any animal saliva. Thus the Chinese pay dearly for what has really no intrinsic value.

Flies are nature's little scavengers. Annoying as they are, their functions are essential. A few would not answer—millions are required. When dead carcasses of animals are decomposing, then the flies are busy and prevent the atmosphere from becoming pestilential.

The surface of our bodies is covered with scales like a fish. A single grain of sand would cover one hundred and fifty of these scales, and yet a scale covers five hundred pores. Through these narrow openings the perspiration forces itself like water through a sieve.

HEAR one side, and you will be in the dark; hear both sides, and all will be clear. HALBURTON.

Fall of Carthage.

BY J. J. WORTENDYKE.

Carthage was a most beautiful city, full of magnificent temples and buildings, and altogether one of the richest places in the world at the time.

Rome had long been jealous of it, and would have gone to war with it long before this, but that the senators could not agree about it. Now, however, the Carthaginians having made war on one of Rome's allies, the Romans resolved to destroy the town altogether, and to make the people remove to a greater distance from the sea.

Much caution was necessary to bring this about, so they agreed to weaken Carthage by degrees, and when it was quite helpless, to make the poor people leave their comfortable homes and go and build themselves a new town.

The Romans at first expressed no violent anger; but required to have three hundred hostages sent to Rome, who should be the children of the senators and principal families of Carthage.

When this was made known, the greatest grief was spread through the town; but the deputies had promised to submit to this demand, and three hundred children were torn from their parents and sent away in ships to Sicily; there they were given to the Roman consuls.

The next thing that was heard was, that a Roman fleet was coming towards the shores of Africa.

Messengers were again sent to Utica, a place in Africa, not very far from Carthage, and then they were told that they must give up all their ships, their arms, and everything that had been useful to them in war. This terrible order they implored to be excused from; but at last, thinking that nothing more would be asked for, they agreed to submit even to this. Commissioners were accordingly sent to Carthage, who received forty thousand suits of armor, twenty thousand large engines of war, and quantities of arrows, darts, and other weapons.

When all these means of defence were taken away, the Romans thought they might safely declare their cruel intentions. Then they told the deputies that it was their determination to destroy Carthage; that the Carthaginians should leave their town; but that they might go and build on any other part of their lands, provided the place was ten miles from the sea. Nothing could exceed the surprise and grief of the deputies on hearing such a harsh sentence.

They threw themselves on the ground and tried, both by pity and by reason, to move the tyrants. They bade them remember the submission of Carthage, its weakness, and how unable it was ever again to offend, or be dangerous to Rome; having given up three hundred children, the most precious blood of the country; they claimed the protection which had been promised to them; spoke of the love which all nations bore to their homes, and to the temples of their gods; and, in short, used every endeavor to soften the hearts of their masters; but the Romans refused their appeal, and ordered them to abandon their city and leave the shores of the sea.

When the Carthaginians heard this message they resolved to defend their city to the last.

They pulled down their houses to give the wood to repair the docks; brought all their brass and iron domestic utensils to make armor and weapons; and even gave up gold and silver to make up for the want of other metals. We are also told that where materials for ropes were wanted, the women cut off their hair, that it might be spun into cordage for their shipping.

After a siege of *three years*, Scipio, the Roman general, forced a way into the town. Even then the inhabitants would not yield, but defended every house and passage way for six days with the fury of despair, setting fire to the buildings as they left them.

After the citadel surrendered the temple still remained to be taken. This was defended by nine hundred deserters of the Roman army, who knew they had no mercy to hope for; therefore, when they found they could hold out no longer, they set fire to the building and all perished in the flames.

When the temple was going to be burnt, Asdrubal, the Carthaginian general, gave himself up a prisoner; but his wife would not submit, and carried her courage to such a barbarous length, that she killed her children with her own hand, and then flung herself into the burning ruin along with their dead bodies.

All that remained of the once magnificent City of Carthage was then set on fire by the merciless conquerors, and the soldiers were allowed to plunder whatever they could find or take away from the wretched inhabitants.

The city, which measured twenty miles round, burned for seventeen days, and was so entirely destroyed that not a stone now remains to show where the great Carthage stood. We know, however, from a description of its situation, that it was within a few miles from where Tunis now stands.

The Romans ended by being much more cruel and ungenerous to Carthage than they first intended; but they had been rivals for a hundred years, and all their bad passions were roused against it.

Curiosities of Natural History.

BY J. J. WORTENDYKE.

Nature is full of wonders. The commonest process of reproduction and of growth comprise mysteries which the human mind has never fathomed. The sprouting of a single weed, the tints of the most humble flowers, the rugged bark which clothes the oak and the delicate vein which intersects its leaves, fail only to fill us with astonishment because we are so accustomed to phenomena, which we are nevertheless incapable of comprehending. Even in ourselves how many mysteries lie hidden in our corporeal being, how many fathomless secrets are contained! Few reflect as they cross a crowded street and thread their way between the hurrying vehicles, that the failure of a single muscle to fulfill its appointed work would instantly arrest the motion of the body, and expose it to be trampled under foot or crushed and mangled by the impetuous animals which are so confidently disregarded! Few are aware that the slightest prick of a pin upon one point, no larger than a pin's head, of the spinal marrow, will produce death more instantaneous than the piercing of the heart or of the brain. But we might multiply instances of marvellous provisions in our own system without lessening perceptibly the number of instances in which the wonders of Nature are to be seen. We prefer to illustrate them by one or two simple phenomena in different walks of the animal kingdom, accessible to the notice of every one, and therefore very generally overlooked.

The *aquaria* which during the last few years have familiarized us all with the habits and appearance of some species of fish, have contributed largely to a removal of the ignorance which so generally prevailed upon this subject, and have enabled the curious to witness the processes of nest-making and fecundating which are peculiar to different varieties. It is only of late years that anything certain has been known concerning the reproduction of fish, and nearly all our knowledge on the subject may be traced to a poor fisherman in France, whose patient investigations resulted in discoveries of immense value to his country, though no reward awaited his obscure exertions.

Some score of years ago Remy, a peasant, who earned a precarious living by fishing in the Vosges, found that every year the stock of trout was sensibly diminished, and that his earnings consequently grew less and less. He determined, with a resolute intelligence not common among men of his class, to investigate the habits of the fish, and for years he devoted himself to a study, the object of which was to discover some means of artificially propagating fish in streams where they had become extinct or scarce. All night long, and every night through many a weary month, he lay silent beside the quiet pools watching the movements of trout, and perch, and sticklebacks, and a dozen other species. At length he grasped the entire process, from the making of the nest to the final hatching of the young fry; and his discoveries came to the ears of men of science—Coste, Millet, De Quatrefages and others—who speedily turned his practical experience to account and inaugurated the science of pisciculture in France.

Remy died poor; but his investigations have resulted in the foundation of great establishments for the propagation of fish, by means of which the rivers and lakes of France are re-stocked with all those varied species which centuries of indiscriminate havoc had rendered nearly extinct.

The stickleback frequents pools and ponds in which aquatic plants are to be found, and constructs its nest with mud, small stones, sticks and other material among the roots of the plants.

Manners and Customs in Mascat.

BY J. J. WORTENDYKE.

I had taken passage at Bombay on the Indo-British mail steamer, Penang, which plied semi-monthly between Bombay (India) and Bassora (Lower Mesopotamia), calling at the intermediate ports of Mascat (on the northeast coast of Arabia), Bundo Abbas, Linga or Congoon, and Bundo Abusheher (three seaports on the northern or Persian coast of the Persian Gulf). No sooner had the steamer reached her anchorage, and the chain cable rattled down into the deep with deafening noise, that echoed loudly through the narrow, cliff-bound, romantically picturesque harbor of Mascat, than the vessel was already surrounded by a shoal of balaams (long but very narrow canoes hewn out of a solid log of teak wood) manned almost exclusively by athletic negroes, clad only in short gaudily-colored tights (just like our bathing drawers), and scarlet-colored, coarse woollen caps, resembling those worn by the Venetian and Neapolitan gondoliers.

Nearly every canoe contained a small stock of indigenous fruit and vegetables, such as pomegranates, oranges, lemons, bananas, figs, dates, cucumbers, onions, leek, egg-plant, etc., which these negroes tried to dispose of to the passengers of the steamer—fully three hundred in number, of both sexes and all ages, all natives of Asia and Africa with the exception of the writer and another cabin passenger.

Though not allowed to come on board, the fruit vendors did a "roaring" business, and those who had disposed of their stock offered to take passengers ashore for a mere trifle.

It was really amusing to witness the eagerness of these negroes for business. Each one wanted to be nearest to the gang-way of the steamer, and in their efforts to accomplish this end they kept up a terrible noisy war of words, occasionally came to blows, and every now or then one or the other of the darkies would splash into the water, either through a false step, through the capsizing of his canoe, or through being knocked overboard by an opponent; but with monkey-like agility they righted their canoes and climbed aboard again. Greatly to our astonishment, the sharks, which abounded in the harbor—for we could see every now and then one of these monsters quite distinctly from the deck of the steamer, darting through the limpid water, and almost in every direction did we spy the huge dorsal fins of these hyenas of the sea sticking out of the watery mirror and glistening in the morning sun—did not interfere with the negroes floundering in the water, but actually kept aloof from the noisy rabble.

After awhile a sail boat came alongside, and a well-dressed Arab stepped aboard the steamer to receive the mails.

My fellow cabin passenger—a young Englishman—and I were anxious to go ashore for the purpose of having a look at the interior of the town; seldom visited by Europeans and Americans, except, perhaps, the captain and the crew (always well-armed) of an occasional European or American vessel; but as neither the captain nor the officers made any preparations to go ashore, we were loath to leave the vessel at the risk of being left behind in that horrid hole; notorious not only as the filthiest hole in the Orient, but also as one of the hottest, if not the hottest, of human abodes upon earth.

Luckily for us, however, the steward and provision master—an Englishman—made the timely discovery that he was short of fresh provisions, and aware of our desire to go ashore, invited us to accompany him to the bazaar for the purpose of making the requisite purchases. Seizing the opportunity, we slipped our pistols into our pockets, because it is unsafe for a European or American to venture unarmed among the wildly fanatic population of Mascat, which to this day is in bad odor throughout the East, as being composed chiefly of pirates, slavers and slaves, and thereupon stepped nimbly into one of the numerous balaams still hovering around the steamer. But we came very near upsetting the treacherous little craft in getting into it.

These balaams are excessively unsafe boats, fully twenty-five feet in length by scarcely two and one-half feet in width, even in the centre, their widest part, and perfectly round-bottomed, which renders them so cranky that the slightest displacement of weight from the cen-

tre or keel-line of the boat is almost sure to capsize it.

Sitting down with extreme caution upon the bottom of the canoe, for the simple reason that there are neither seats or benches of any kind therein, and taking scrupulous care to deposit yourself exactly in the centre, is the only means to avoid a ducking.

Although not afraid of an involuntary bath, we sat as immovably as statues in the canoe, because whenever we cast a glance upon the water, we saw those ugly sharks' fins plow silently alongside of us through the watery mirror. After awhile, however, we felt the bottom of the canoe grating against the sand, and found ourselves, much to our relief, safely landed upon the white, sandy beach, but breathing an atmosphere highly suggestive of decomposing animal matter in our immediate vicinity.

We had no sooner stepped out of the canoe than we were literally covered with the well-known carrion-flies, called blue-bottles, and a glance over the beach revealed to us large heaps of fish-heads from the size of an almond to that of a bullock's head. In fact, the entire refuse of the extensive fisheries of Mascat lay there rotting in almost every stage of decay in the broiling sun, while clouds of flies and myriads of maggots held high revel over the putrid mass.

Almost fainting from the appalling stench, we rushed up the beach, followed by a crowd of tattered and naked loungers, whom apparently nothing but their intense curiosity to see what the strangers were going to do on shore could induce them to temporarily abandon the pestilential effluvia of the beach, which seemed not to incommode them in the least.

We entered the gloomy, musty, slovenly town through the street, or rather lane—for a passage scarcely eight feet wide cannot well be called a street—which separates the Imaum's palace, a very plain, oblong, flat-roofed building three stories high, of yellowish-gray stone, facing toward the offing and looking but for its scanty iron-barred windows, like any ordinary cotton-mill or factory; and the *Zenana*, or edifice where the ruler's harem is domiciled; a structure similar in size and appearance to the former, though not quite so long. These two buildings, divided as already stated, from each other by the narrow, gloomy lane mentioned, are by far the largest and best edifices in the town with the exception, perhaps, of the residence of the British consul, or as he is officially called Her Britannic Majesty's Consul and Political Resident of Mascat, the only white or civilized man in the town, who dwells in an oblong, two storied flat-roofed stone building, furnished with large windows, piazza and balcony facing toward the Imaum's palace, from which it is separated by a luxurious, beautifully kept garden, belonging to the consulate, and surrounded together with the latter by a stone wall about twelve feet high, nicely whitewashed like the consul's residence, both inside and outside.

These three buildings, namely: the Imaum's palace in the centre, the *Zenana* to the right, and the British Consulate to the left of it, form the entire front of the town of Mascat, toward the harbor, and undeniably its principle and most attractive portion, though both of the Imaum's buildings look intensely bleak and gloomy along the snow-white consulate, faced by the beautiful garden.

The entrance to the Imaum's palace and to his *zenana*, we found closely guarded by small bands of mongrel soldiery, composed of Arabs, Persians, East Indians, Malays and Negroes, heterogeneously armed "free lances," some of them so profusely weaponed as to approach the ludicrous, and to cause us to burst out laughing outright. Although fairly groaning under the weight of their multifarious ornament, most of them were wretchedly clad, some of them in tatters, and many all but stark naked. In one respect, however, they were well matched, namely, in bearing without exception the facial expression of the genuine ruffian.

The suburbs of Mascat are inhabited chiefly by negroes, Arabs and Persians of the poorest class, who live in the frailest and most simple huts I ever saw, as they are composed merely of coarse, stiff mats about ten feet long by seven feet in width, manufactured from the leaves of the date tree. Two of these mats are simply stood upon their ends slanting edgewise toward each other, and in that position sewn together along the ridge of the roof thus formed. The front and back of the hut, composed of the same material, is thus sewed on in

the same manner—a hole left for the entrance, and the hut, ten feet long, about eight feet wide at the base and five feet high at the apex, is ready for occupancy.

The bottom or floor of the majority of these huts is the soft, dry sand of the desert. In fastidiously gotten-up huts a piece of matting is laid on the floor. The furniture of even the best of these huts consists of a "sherba" (water urn, of common sun-dried clay) and a few earthen pots.

In and around these wretched dwellings live human beings—male and female, old and young—the adults scantily clad, the minors either nearly or totally nude, in perfect harmony with mangy curs, donkeys, goats, sheep, poultry, etc., and live on fresh and sun-dried fish and locusts, as well as on the scanty fruit and vegetables which the arid country produces.

Fully satisfied with this population's capacity of living cheap, we returned through the gloomy back-gate to the town, where all the dwellings are considerable better than those just described, being at least capable of standing a slight breeze, if such a thing should ever visit Mascat, so effectually pent up between towering, perpendicular rocks which form a natural fortress and almost insurmountable barrier all but entirely around the town. The majority of the buildings of the town are built of sun-dried bricks and adobe, flat-roofed, and between ten and twenty-five feet high—those along the thoroughfare of the bazar being generally composed of a ground floor, or rather a floor about three feet from the ground, with one story built above it. The former is used as a store, shop or magazine, the latter as a dwelling for the occupants of the house during the short "monsoon" or rainy season, as well as during the interval between sunrise and sunset, the intense heat of the day rendering it impossible to live upon the flat roofs of the houses, where they all spend the nights, and whither they retire every evening as soon as the sun is near setting.

The scantiness of windows in all these houses, all of them iron-barred, the rude masonry, the dull color of the wall and the narrow, sinuous and filthy thoroughfare, give them that notoriously sinister aspect characteristic of the majority of all Oriental towns, which is only partially neutralized by the glaring colors incident more or less to all Oriental costumes.

Arrived in the bazar, our steward began to attend to the business that brought him hither in right good earnest, and the manner in which he bartered for the provisions he required, and the quickness with which he discovered the tricks of the rascally dealers in trying to palm upon him inferior goods or cheat him by short weight and in the exchange of money, and the business-like way in which he dispatched his purchased goods to the steamer proved him to be "the right man in the right place."

The Diamond.

BY FERD. N. CARPENTER.

Forming as it does a striking contrast with the immense amount of carbon in the form of coal, this element is found here and there, being distributed sparingly and in very small quantities, equally for the use of man, in the most expensive and splendid of gems. That the diamond is pure carbon is proven by burning it in oxygen, the residuum being carbonic acid, a compound of oxygen and carbon, the same as when charcoal is burned in a common furnace.

Pure charcoal and anthracite, consisting, as they do, of carbon alone, the dissimilarity existing between them and the diamond is found merely in the arrangement of their atoms; and from this fact wholly, is given rise to their characteristics being chemically of the same substance.

Of those diamonds which are colored, the coloring matter is mixed thoroughly with the carbon in the same way that glass is made of various tints by adding something to it. What the substance is that produces their color has never been positively ascertained; it being present in quantities so small as not to be detected unless a considerable amount of stone were burned, which, from its scarcity would be a costly experiment.

Noticing the qualities of the diamond we find it to be the hardest of known substances, and an exceedingly brilliant reflector of light. Its lustre is peculiar. Precious stones which are inferior to it in this respect are said to have an adamantine lustre.

It is commonly colorless; but sometimes found of red, green, black, orange and yellowish tints. The rose and green varieties are very highly prized on account of their color. The black diamond is valued, and brings a high price, because of its rarity, but has no beauty.

In speaking of the size of diamonds the term carat is used. This is a bean found in Africa, and after being dried is used by the natives in weighing gold, and in India in weighing diamonds. Though the bean is not used at present the name is still retained, and the carat is nearly four grains Troy.

The largest diamond ever found is in the possession of the Great Mogul—in shape being uniform, and resembling half of a hen's egg in size. Its weight was originally 900 carats, or 2,700 grains, but was reduced in cutting to 861 grains. Another noted stone is the Pitt, or Regent, the weight of which is 419 grains. Also the famous Kohinoor, weighing 186 grains, having been reduced one third by cutting.

As may readily be inferred, the prices of these precious stones are enormous, depending on the weight, purity and color. The price of an average stone, weighing one carat after being cut, is about \$40, and for one weighing four carats \$640. The Regent is valued at \$625,000.

The discovery of cutting and polishing the diamond is accredited to Louis Bergen, of Bruges, in the year 1456, before which the art was unknown. Prof. Dana gives a description of the process as follows:—

The diamond is cut by taking advantage of its cleavage, and also by abrasion with its own powder, and by friction with another diamond. The flaws are removed by cleaning it, or else by sawing it with an iron wire which is covered with diamond powder—a tedious process, as the wire is cut through after drawing across five or six times. After the portion containing the flaws has been cut off the crystal is fixed to the end of a stick in a strong cement, leaving the part projecting which is to be cut, and then another being prepared in the same manner the two are rubbed together until a facet is produced. By changing the positions other facets are added until the required form is obtained. A circular plate of soft iron is then charged with the powder produced, and this by its revolution finally polishes the stone. To complete a single facet often requires the work of hours. The expense of cutting the Regent diamond was estimated at \$25,000, and the flings at \$35,000 sterling.

The most familiar use made of the diamond is in cutting glass. It is also used for lenses in microscopes. Those stones which will not work are called *bort*, and are used for various purposes—being sometimes splintered and then made into drills. These crystals are found in some parts of Africa, India, the Island of Borneo, Brazil, and the Urals of Russia. Their native rock seems to be quartz limestone, but are more prevalent among the pebbles, sands and washings scattered by the brooks and rivers. In Brazil these sands and pebbles are subjected to a washing through a system of boxes, and the diamonds are discovered and obtained in this way. If a native be so fortunate as to find a diamond weighing seventeen and a half carats, he gains a boon above the price of gems—the boon of liberty.

A Natural Phenomenon.

On the banks of the Castleman River, about two and a half miles above Confluence, is a sight which is well worth the trouble of going to see. A short distance from the river, at the foot of the mountain, six poplars are growing, the place enclosed being in the shape of a coffin. For about six feet from the ground the six trees have a common trunk, or rather root, as it seems as if the six trees in the enclosed space had all united solidly, and had grown out of the ground, carrying the earth above them up along to the height named. On climbing on the top of this common trunk, it is found that these poplars must have been planted around a child's grave. The enclosed space is about four feet long, and the green grass is growing in the earth there. At one end is a grave stone with an inscription on it, which, however, is worn by time. A part of it is broken off by the wear and tear of time, although it would be thought that those sturdy poplars would be able to protect this small charge of theirs. No one knows by whom the grave was made.

How the Surface of the Earth Crumbles Away.

FOR THE BOYS.

BY W. P. BENNETT.

Some days ago I was in the oldest cemetery in Ohio. The headstones, some at least, had been standing say sixty-five years, and indicated decay. The sandstones were much worn by rain and storm. Some of the lettering was gone; many inscriptions were not readable, and designs were so injured I could hardly tell what they were intended to represent. The water had entered many a little seam and crack and pushed off chips and spalls. The iron fences were deep scarred with rust, and the marble posts had lost their smoothness and were deeply stained.

I passed down street by a church with stone foundation and brick walls. A wild vine had attached itself to the wall and run to the height of forty feet or more. A man's weight could not displace it. On examination there were hundreds of wiry tendrils shot out from the vine, and each one had divided into four or a dozen fingers, and the end of each finger had embedded itself between the grains of the rock.

I passed through town, and over the hill into a gorge that had been cut by a "run." On the left was a rocky perpendicular bluff. At its base were many broken stones. The ledge was full of seams, and other pieces were ready to fall. I walked out a country road and halted on a bridge, under which a small river ran quite swiftly. The water was real muddy, and there were weeds, and old sticks, and chips, and limbs of trees, and here and there a large log and a complete tree, with root and branch. A recent rain had enlarged the river, and this debris had been collected along the banks and margin, and the clay washed from the hills had made the water dirty.

What does this all mean? The muddy river, the broken gravestone, the rusty iron, the vine on the church, and the falling bluff? It means decay and waste; it means continual change.

There are *powers* in the air, in the water, and in the plants that never cease their work. They have been at work thousands of years, and they still continue, and will, day and night, winter and summer. They work not only in Ohio, but throughout the whole continent—all over the face of the earth, over every plain, on every mountain, and in every valley.

Some of these *forces*, boys cannot fail to notice if they open their eyes. I have seen boys pass by very wonderful things in Nature, which they did not notice more than the ox; but I trust the young people who read the GROWING WORLD see many beautiful things in her dominions.

Moving waters—rain, rivers and falls—are great workers on the earth. The rain, falling on the hills and plowed valleys of the Missouri, Mississippi and Ohio, gathers immense quantities of the clay, soil and sand, salt and lime. The rivers themselves have cut deep passages, and their waves are continually making wider their beds by undermining the banks and washing away the earth. Thousands of acres of the best farming land in the country are taken away yearly by the Ohio River. A well formerly used at Fort Harmar in early times—say eighty years ago—is now many rods out in the river bed.

In other countries, mountainous and rocky, where there is less soil to absorb the rains, the waters gather more rapidly, and the rivers, having a greater fall, go rushing and tearing along their beds. In such rivers the *force* of the moving water is so great, large rocks are carried forward, rolling, and tumbling, and grinding against each other with a thundering sound. This motion of the rocks cause a continual waste, and the big ones become small, and the small ones are crushed into sand, and the fine sand and silt are carried into the bottoms or intervals to make soil, or into some lake, or the ocean.

In some rivers with rocky beds and banks, like the Mohawk, a rolling stone finds a cavity into which it falls, and the waters set it to whirling and wearing itself away, and the hole larger and larger. And in a dry season numerous such cavities can be seen, holding from a single quart to many gallons, and containing a highly polished stone that done the work.

The falls of rivers are continually wearing away the bank over which they roll. At the base of the fall there

is often a softer stratum of rock, and being continually struck by the ever falling water, crumbles out and undermines the ledge above, so that its own weight and the water above it breaks it off. In this way the fall—it may be but a few feet in a hundred years—moves up the river. In the last estimate that has been made, the Niagara Falls are eating back through the ledge of shale and limestone about six inches in a year.

I have never seen the sea or the great ocean, but have read and been told wonderful things of its power. I can, in imagination, see its mighty waves, and hear their everlasting roar. The waters thundering in its rocky caverns are almost a reality. The beetled rock, the smooth-worn ledge, the wrecked vessel, the retreating tide, the white-capped waves, and the dashing spray form a sublime picture in my mind. What a fearful waste and destruction must always be going on along the coast line of the sea? The moving waters roll heavy stones back and forth with a grinding motion; wash the dirt from every crevice in the ledgy shore; drill caverns in the solid wall, and bore tunnels through some projecting head-land. This motion is not only for a stormy day or night; for weeks, and years, and centuries the waves roll on, and on, and never cease!

"On some parts of the coast-line of England, where the rock is easily worn away, the sea advances on the land at the rate of two or three feet every year. Towns and villages which existed but a few centuries ago, have one by one disappeared, and their sites are now a long way out underneath the restless waters of the North Sea. On the west coast of Ireland and Scotland, however, where the rocks are usually hard and resisting, the rate of waste has been comparatively small."—GEIKIE.

Other forces more secret than the waters, but as effectual, will be considered in a future paper.

The Oldest Human Remains.


BY B. C. MORSBEE.

In the Etruscan Vase Room of the British Museum is to be seen the oldest human skeleton in existence, excepting, perhaps, a few fragments of that ancient people known to modern science as "cave dwellers," the age of which is a matter of conjecture. It is the skeleton of one Pharaoh Mykerinus. It is decently encased in its original burial clothes, and upon the fragments of the coffin which encloses it, is an inscription which may easily be read by Egyptologists, affording conclusive evidence that it once contained the body of a king who reigned in Egypt more than one hundred years before the time of Abraham.

The proof of this statement is this: In the year 1864, Herr Dumichen, a noted German archaeologist, discovered a large tablet on which was a list of all the Egyptian kings, from the time of Mirraim, the founder of the Egyptian monarchy, to that of Pharaoh Seti I., the father of the well-known Rameses the Great. This tablet gave us a chronology of nine centuries, viz.: from B. C. 2300, to B. C. 1400. It also informs us that the Pharaoh Mykerinus, referred to above, succeeded the builder of the great Pyramid of Ghizeh, with only the reigns of two intervening kings.

The dates of several important epochs in the history of Egypt are accurately determined by astronomical evidence. One of these is the time when the Great Pyramid was built. Sir John Herschel has fixed the date of this at B. C. 2257, or forty-one hundred and thirty-three years ago. Thus it is proved beyond the shadow of a doubt that we have the remains of a king who ruled a large empire more than four thousand years before any one now living was born.

It may be, as we have before hinted, that the remains of the cave-dwellers, or possibly, of some other Egyptian mummies which we possess, are older than this; but it would be a very difficult task to prove them so. Were such an attempt to be made, there would not be the slightest basis upon which to build a theory. Consequently we are justified in assuming that the skeleton of Pharaoh Mykerinus is the oldest human remains in existence.

 The last census of the Japanese Empire makes the population 33,300,675, an increase of 199,850 since the previous census was taken, three years ago.

Birds of Tennessee.

There are many varieties of birds in this latitude (West Tennessee); some belonging to more northern or southern climes, whose visits are occasional or periodical, while others are to the "manor born," or rather hatched. Among this large and numerous tribe, or family, we can mention but few which might be considered leaders of society, in an article like this which we purpose to contribute to the readers of the GROWING WORLD. Prominent among this few is that splendid songster, the mocking bird, who is a real aristocrat in every particular—shunning the society of his less gifted fellow-songsters of the forest. He takes up his abode near the habitation of man, either in the town or near some farm house in the country. The older the plantation, and the more aristocratic the surroundings, the more he seems to delight in selecting such places for his summer retreat; where perched upon some old apple tree or tall cedar, or in some thick hedge or copse, he will pour out his thrilling song for ten or twenty minutes, rapidly varying the notes which imitate almost every bird in the forest, from the plaintive cooing of the turtle dove to the shrill cry of the partridge, whippoorwill, or blue jay, interspersed with various warbles and rich musical sounds, when he suddenly breaks off his song, flies rapidly away to some neighboring farm house, perhaps a mile off, to renew it; like some fastidious prima-donna who thinks one song for an audience is sufficient.

The mocking bird also sometimes favors us with a song in the night, and in this respect resembles the English nightingale. I have frequently, on bright, beautiful moonlight nights, in the months of May and June, on awakening from slumbers, listened to the thrilling notes of this delightful songster, perched in some distant tree as he whiled away the gloomy hours of night. He is a constant visitor with us here in the summer, and occasionally, when the winters are mild, remains over during the season; but usually seeks a more genial climate farther south.

Another splendid songster we have here as a summer visitor, is a species of small wood thrush—the mavis of Burns—quite a homely, shy bird, that in his habits is much the reverse of the mocking bird, as he prefers the deep solitude of the forest and avoids the haunts of men. He is a small russet-brown bird, makes his appearance with us usually in April, and is a delightful songster.

In the early morning of a balmy spring day, before the sun comes forth from his chamber as a "bridegroom, and as a strong man rejoicing in a race," the plaintive, melancholy, yet sweet and delightful notes of this little homely bird may be heard as he offers his morning hymn to the God of all creation, much resembling the word ju-bi-lee, long drawn out; and I have on more than one occasion, when listening to his morning and evening hymn, just before some glorious sunrise or sunset, almost imagined that I heard the chant of an angel band in the far distant ether, sent to waft the spirit of some good Christian to his eternal rest above.

We have many other birds in our state too tedious to mention in an article like this—some respectable songsters among them; among which we might mention the robin, the long-tailed thrush, or thrasher, the red bird, blue bird, cat bird, blue jay, partridge, whippoorwill, wren, oriole, etc.; but we will close our article by adding that birds are doubtless given to us by an all-wise Creator for our happiness and pleasure, and we might do well to appreciate the blessing more by encouraging their breed and growth among us rather than to declare a war of extermination against the harmless creatures,

J. F. T.

Wonders of the Tide.

BY CORA BELLE.

There is something wonderful in the daily coming and going of the tide, however familiar it may be to us. Eight years familiarity with it did not make it seem less wonderful to me. One cannot but recall the remarks of the astonished Western man on his first visit to the seaboard: "Two freshets a day and not a drop of rain."

But in some regions they have tides that would make any of us open our eyes in amazement. Indeed there seems to be at times strange spasmodic commotions going on in old ocean in her efforts to bring to time all her working powers, and carry on all the many offices laid upon her.

Near the equator, vessels crossing the Atlantic frequently encounter what the seamen call "tide rips." A great commotion goes on in the water, even at a time of dead calm. A great wave of alarming height will be seen bearing down on the ship, whose idle sails are flapping against the masts. Its roaring noise and foaming crest often excite the fears of the inexperienced; but with a momentary jar and strain against the ship's side it has passed on and out of sight.

Similar to these are the great tidal waves of India, which occur with considerable regularity at the fall and spring equinoxes. Such occurrences also take place at the Bay of Fundy and at the mouth of the Amazon, where the sea at stated times comes rolling in with such rapidity that swine feeding on mussels by the shore are often overtaken and drowned; and even the fleet deer, which comes down to the banks for salt, cannot always escape.

An observer thus describes this remarkable wave as it appeared at the mouth of a Chinese river. The time was known and the busy city was on the lookout for it. "As the hour of flood tide approached, crowds gathered in the streets. On a sudden all traffic ceased in the thronged mart fronting the river. Porters cleared the street of every description of merchandise; boatmen ceased loading and unloading their vessels, and put out into the middle of the stream; so that a few minutes sufficed to give a deserted appearance to the busiest part of one of the busiest cities of Asia. The centre of the river teemed with crafts of all sizes. Loud shouts from the fleet announced the approach of the flood, which seemed like a glistening white cable stretched athwart the mouth of the river. It advanced with great velocity and a thundering sound, assuming the appearance of a cataract thirty feet high and four or five miles across. It seemed impossible that the fleet could escape destruction; but all were employed in keeping their prow to the wall of water, and when the fearful moment came all vaulted it with the skill of salmon. The grand and exciting scene was of but a moment's duration. It passed on its way up the river with ever lessening power until it was finally lost in the ordinary current."

"A few minutes more and the usual traffic was resumed in the wet streets. Women and children hurrying about to pick up any articles dropped in the confusion."

Subterranean Walls.

BY B. C. MORSEBEE.

Antiquarians and historians have long endeavored to discover who first inhabited North America. But the deeper their investigations are carried the more distant appears the solution of their problem. In almost every state are found evidences of an ancient civilization. Those of which we shall speak in this article are found in the central part of North Carolina. They consist of two stone walls, built in a manner which might put to shame the work of any mason, and with a mathematical precision which our best engineers would be unable to surpass. Both of these were evidently built in a deep trench, dug for the purpose, into which dirt has been washed, completely filling it, so that the earth must be removed in order to obtain a view of them.

The largest is three hundred feet in length, twelve feet high, and twenty-two inches thick. The other is six or seven miles distant, and is forty feet long, four or five feet high, and seven inches thick. They are built of small, irregular stones, weighing from four to six pounds, and neatly cemented together; the whole being covered with the same kind of cement, which, when wet, has the fine oily feeling of putty. Both walls run nearly parallel with the surface of the ground; the larger being about twelve inches and the smaller about eight below the top of the ground.

These walls differ in many respects from those found in Ohio and other parts of the country, and evidently were made by a different nation; but by whom, or for what purpose, is a matter of conjecture. It is possible that the largest was built for the foundation of some edifice which was never completed or which has long since been totally destroyed. If this be true, a trench dug at right angles to this wall might discover another similar to it; but this supposition cannot apply to the smallest, which is only seven inches thick, and, consequently, unfit for the foundation of any building which would require a wall four feet in height and forty feet in length to support it.



THE OLD-FOGY MAN.

He was a queer old-fogy man,
And loved old-fogy ways;
And railed against the reckless speed
Of these fast modern days.
He once could travel leisurely,
And stop his friends to hail;
But now they rushed him through by steam,
And rode him on a rail.

That good old coach was fast enough
For prudent folk to go;
Impatient men now laugh at it,
And say 'twas rather slow;
And so they rush upon the train,
And speed like thought away,
Until a smash-up breaks their bones;
He thinks it doesn't pay.

He loved old housewives' spinning wheels;
The music of their hum
Was far more dear to his old ear
Than grand-piano thrum.
But ah! he sighs, those wheels are gone
Since Whitney made his gin;
No more we hear their thrifty hum—
No more the sisters spin!

The rosy girls of olden time,
Sunburnt, were firmer made
Than these, the late tender shoots
That grow up in the shade;
They did their mother's heavy work,
And eased her weary hands;
And sometimes, too, if brothers failed
Could help to do a man's.

Their dresses, made with easy fit,
Gave not a pain beneath;
Their hearts had ample room to beat,
Their lungs had room to breathe—
Unlike our present girls, with waists
Too much compressed and slight,
Who, if they do not dissipate,
Are very often tight.

They let not Fashion dwarf their forms,
But grew to comely size,
And health shone ever on their brows
And sparkled from their eyes;
They thanked kind Heaven for all its gifts
And thought, with secret pride,
That they were beautiful enough,
And they were satisfied.

But now, our modern girls, alas!
Think Providence unkind
For putting too much in the midst,
And not enough behind!

And so they bustle round, and lace,
To mend such clumsy ways,
And think they far outshine the girls
Of good old-fogy days.

He wished, he said, for their sweet sakes,
That Fashion's torturing vise
Would ease them up a little, and
Less pinching would suffice;
That they might feel the bounding health
Around the heart that plays,
When all unfettered as it was
In good old-fogy days.

Carnivorous Plants.

There is a plant indigenous to our Southern States, known as *Dionæa muscipula*, or Venus's fly-trap, that has each of its leaves terminated by a two-lobed appendage about half an inch long and three-quarters of an inch wide. The edge of each lobe is furnished with stout fimbriæ, or, perhaps more properly speaking, a set of claws. On the face of each lobe are also three minute bristles triangularly arranged. These lobes lie open and flat, and then the appendage closely resembles an old-fashioned spring rat-trap. Whenever a fly or other insect lights upon this trap it immediately closes upon it, and remains shut for a few days, and then gradually opens, when nothing of the fly will be found but its skeleton, all the soft parts having disappeared, being absorbed or digested by the plant.

Why this should be was a mystery to botanists, but some recent investigations show that the plant will also absorb or digest the juices of raw meat in the same manner, rejecting the fibrine as it does the skeleton of the fly. It is also found that the points of the bristles are analogous to those of the tips of the nerves found under the skin of animals, and further, that there is an electric or galvanic action takes place similar to that which ensues in animals when action on the muscles is produced through the nerves. As there is no spring or mechanical arrangement which would account for the closing and opening of the trap, we are led to infer that this action must be produced by the irritability of the nerves, and if the analogy be correct, there must also be something equivalent to muscular action and the digestive powers of the stomach in animals, and the plant must be endowed with some low form of sentient life.

Akin to this plant are the *Droseras*, or sundews, common in boggy places in our Northern and Western States. These plants have their leaves furnished with small, delicate, reddish bristles, on the apex of each of which is a gland that exudes a clear liquid like dew, hence the name. These plants also appear to be carnivorous, for if an insect or piece of meat is placed on them, the bristles close upon it, like the clasped fingers on the palm of the hand, when similar action takes place as in the *Dionæa*: but if a small pebble or piece of wood is placed upon the leaf, the bristles do not clasp it, and no motion or other action takes place.

In another genus—viz., the *Sarracenia*, side-saddle flower, huntsman cup, or American pitcher-plant, as it is variously called—the leaves are from six to ten inches long, tubular and pitcher-shaped, with an erect open hood or lid at the apex of the leaf, the inner face of the hood being clothed with stiff bristles, and the upper part of the tubular leaf also being furnished with bristles that point downward. The leaf secretes a fluid into this pitcher-like cavity, which is tasteless, and appears to be nothing different from clear water; but the lid on its inner face exudes a sweetish viscid fluid, which attracts insects and appears to have intoxicating effects; for if a fly sips it he seems to lose his muscular power, and drops down into the water contained in the leaf, and is drowned. If he is not sufficiently paralyzed, and attempts to crawl out, the downward-pointing bristles at the upper end of the cup prevent his egress. These cup-like leaves may frequently be found more than half full of flies and other insects, and it appears probable, although it is not yet fully determined to be so, that the plant absorbs the liquid or water after it has become charged with the fluids in the bodies of the insects. There is also reason to believe that some other plants are endowed with similar powers.

OUR own heart, and not other men's opinions, forms
our true honor.

COLERIDGE.

The Wonders of the Heavens.

In the first chapter of Genesis, we read: "God created the heavens and the earth;" and in this work-a-day world of ours, we find so much to absorb our attention on earth that we think little of the wonders of the heavens, though they form by far the greater part of God's dominions.

In Psalms, 8th chapter, 3d and 4th verses, we read: "When we consider Thy heavens the work of Thy fingers, the moon and the stars which Thou hast ordained, what is man that Thou art mindful of him?" The Psalmist seems inspired to look far beyond this world.

In Isaiah, 40th chapter, 15th and 17th verses: "Behold the nations before Him are as a drop of a bucket, and counted as the small dust of the balance, and are less than nothing and vanity." If man is the principal inhabitant of creation, then there is no wonder at God's minute, superintending care over him; but if the immensity of space is diversified with 10,000 times 10,000 worlds, inhabited, as science and reason teach. If Adam's race are as but a drop of the ocean, then the Divine condescension is truly wonderful and astonishing, that from the heights of His glory in the heavens, the Most High should look down upon us with an eye of complacency, and regard us with a Father's tender care. This is evidently the Psalmist's idea in the verse above quoted, and would be inconsistent if this earth were the principal abode of rational beings. It also teaches that the Almighty has diversified the fields of immensity with innumerable worlds; and while He sits enthroned on the magnificence of His works in the distant regions of His creation, and governs the affairs of all, He also superintends minutely the affairs of every world He has created, however small.

His eye rests on the smallest object of His creation; His Spirit watches it carefully. Man, and even microscopic animalculæ, are not overlooked. This is an attribute belonging only to Jehovah, which comes from the immensity of his nature, and his boundless knowledge of all his works.

To contemplate all this gives us a grander and more sublime idea of His character. By overlooking it our views of the Eternal God are narrower and more contracted. He is declared by the prophet as "that Almighty Being who measures the ocean in the hollow of His hand." "Who meteth out the heavens with a span; Who comprehendeth the dust of the earth, in a measure;" "Who weigheth the mountains in scales, and the hills in a balance." "He stretched out the heavens as a curtain, and bringeth forth their host by number;" "He calleth them by their names, by the greatness of His might, for that He is strong in power, and there is no searching of His understanding." In Psalms, 103d chapter, 19th verse, we read: "The Lord hath prepared His throne in the heavens, and His kingdom ruleth over all." Such declarations would be scarcely proper if no other world were inhabited.

The heavens form the principal part of the divine empire, and the earth is but a speck in comparison "He doeth as He will in the army of heaven and among the inhabitants of the earth." Now, if there were no intellectual beings there, there would be no moral government, therefore the heavens must be inhabited by beings endowed morally and intellectually.

"Who is like unto our God, who dwelleth on high? Who humbleth himself to behold the things that are in heaven and in the earth, and whose glory is above the heavens."—Psalms 113th, 4th and 6th verses.

We can get some idea of the vastness of God's creation, by commencing a train of thought, at these objects right about us, with which we are familiar, and gradually ascend to those objects and scenes more distant and expanded.

An ordinary landscape is but a speck in comparison with all the lakes, mountains, etc., on the globe; there would be more than 900,000 such landscapes, and if twenty minutes were allotted to each one, ten hours a day—it would require 90 years constant observation before all the prominent objects on the surface of the globe could be thus surveyed. Then compare this with other globes which far excel this in extent, it would require more than 55,000 years to contemplate all the variety of scenery on the sun, if a landscape of 5,000 square miles passed before our eyes every hour.

But the sun and its surrounding planets dwindle

down to a mere speck as we wing our flight toward the starry firmament.

Before we could arrive at the nearest object in this firmament we must travel at least 20,000,000,000 miles. It would take a cannon-ball, at its greatest speed, 4,000,000 years to cross it.

On a clear winter's night we can see about a thousand shining orbs with the naked eye, most of them sending their light from spaces immeasurably distant, and, therefore, they are of immense magnitude. We have reason to believe that many of them may be vastly greater than the sun, and we cannot suppose them to have been created in vain, or merely to diffuse light over the wilds of immensity. It is inconsistent with God's greatness to create anything useless. These thousand stars may be considered as connected with at least 50,000 worlds; and if all are inhabited, our population is meagre enough in comparison.

After surveying all this, we would still stand on the outskirts, or extreme verge of creation.

There are 20,000 times more stars visible through the telescope than with it. Ascending from the Milky Way, with its thousand stars, we perceive several thousand dim specks, which powerful telescopes resolve into immense clusters of stars, which may be so many Milky Ways, and perhaps outvieing ours in grandeur. We cannot form even an approximate idea of the magnificence of such a scene.

Still this is not the universe. Could we range through it on the wings of a seraph, we would still find ourselves on the verge of creation, with a boundless prospect stretching toward infinity on every side.

Other intelligences may have larger powers of vision to penetrate into space. We shall never be able to penetrate to the remotest bounds of the universe.

It will be part of our happiness ever to have something new to learn, for at every period of future existence there will still be a boundless prospect stretched out before us, with new objects continually rising to view. And innumerable ages may pass without the least fear of ever arriving at the termination of the scene. Were some superior intelligence ever to arrive at such a point, from that point his happiness would begin to diminish; he would feel that nothing new and transporting were to be added to his enjoyments throughout his future existence. But the vastness of God's universe will forever prevent this from occurring.

We cannot be supposed to have attained a full idea of the universe without considering the sensitive and intellectual beings it contains, as we cannot suppose all these worlds are uninhabited and useless, but created for a useful purpose.

But we cannot begin to estimate this, and so leave it for your thoughts to range at will. But to overlook all the astonishing scenes of the universe, or to view it with indifference is to disregard the works of Jehovah, and to refuse to consider the works of His hands.

Those Thrones and Dominions, and Principalities and Powers, may be able to comprehend such scenes, but they baffle our efforts. Beyond all these objects that we have been contemplating, a boundless region exists, of which no human eye has yet caught a glimpse, and no finite intelligence has yet explored. What scenes of grandeur and power and goodness and magnificence may be displayed in this unapproachable and infinite expanse, neither men nor angels can describe nor form the most rude idea of.

Here may be that splendid region so frequently alluded to in the Scriptures as the Heaven of Heavens. Evidently showing that it is the most glorious and magnificent department of creation.

Countless myriads of beings, standing at the highest point of intelligence, and invested with faculties of which we have no idea, must inhabit these regions, for we are positively told that hosts of intelligent beings reside in such abodes, and those hosts of the Heaven of Heavens worship God.

But we cannot penetrate farther into the dominion of Him who sits on the Throne of Immensity; but, in the deepest adoration, we can unite with the inhabitants of the eternal world, in saying, as they are represented to say: "Great and marvellous are Thy works, Lord God Almighty. Thou art worthy to receive all glory, and honor, and power, for Thou hast created all worlds, and for Thy pleasure they are and were created."

M. E. A.

The Vatican.

This word is often used, but there are many who do not understand its import. The term refers to a collection of buildings on one of the seven hills of Rome, which covers a space of 1,200 feet in length, and 1,000 feet in breadth. It is built on the spot once occupied by the garden of cruel Nero. It owes its origin to the Bishop of Rome, who, in the early part of the sixth century, erected a humble residence on its site. About the year 1160, Pope Eugenius rebuilt it on a magnificent scale. Innocent II., a few years afterwards, gave it up as a lodging to Peter II., King of Arragon. In 1305, Clement V., at the instigation of the King of France, removed the Papal See from Rome to Avignon, when the Vatican remained in a condition of obscurity and neglect for more than seventy years.

But soon after the return of the Pontifical Court to Rome, an event which had been so earnestly prayed for by poor Petrarch, and which finally took place in 1276, the Vatican was put into a state of repair, again enlarged, and it was thenceforward considered as the regular palace and residence of the Popes, who, one after the other, added fresh buildings to it, and gradually encircled it with antiquities, statues, pictures and books, until it became the richest depository in the world.

The library of the Vatican was commenced 1,400 years ago. It contains 40,000 manuscripts, among which are some by Pliny, St. Charles Borromeo, and many Hebrew, Syrian, Arabian, and Armenian Bibles.

The whole of the immense buildings, composing the Vatican, are filled with statues found beneath the ruins of ancient Rome; with paintings by the masters, and with curious medals and antiquities of almost every description.

When it is known that there have been exhumed more than 70,000 statues from the ruined temples and palaces of Rome, the reader can form some idea of the richness of the Vatican.

The Taking of Food by Fish.

When a fish snaps up an object it first opens its mouth and closes its gill flaps; and opens the gills when it closes the mouth. When it wishes to reject a disagreeable morsel, on the other hand, it first, with closed mouth, opens the gill slits, and enlarges the mouth cavity, then shuts the gill slits and simultaneously opens the mouth. By narrowing the mouth-cavity throughout its length, it now forces out the contents; and in doing so, it is driven a little backward by the reaction, like a cannon when it is fired. If we think of it a little more closely, we shall see that, without the gill slits, the fish could not snap up any object, and so could not eat, because the morsel, if it got into the mouth-cavity, would, on closing the mouth, be ejected. The reason is simply this: On opening, the mouth-cavity fills with water after the manner of a pump, and the morsel is taken in through suction of the portion of water in which it floats. It can now be held fast in the mouth only if the water finds a mode of exit so narrow that the morsel cannot escape along with it. For this the mouth slit is nowise fitted, for if it be closed, so that a small morsel cannot escape by it, it affords no easy outflow for the water. But the want is fully met by its gill apparatus, which presents a double row of long narrow slits, each of which is generally a good deal longer than the mouth slit, so that the water can readily flow away without the morsel being carried off along with it. But, again, if a fish were obliged to eject by its mouth the water it had taken up, it would be driven backward at each bite, and have to expend force wastefully in recovering its ground by swimming, which would be specially disadvantageous in flowing water. On the contrary, however, as the water flows out backward through the gill slits, the fish receives each time an impulse which drives it forward, and the maintenance of its position in rapid water is thus rendered more easy. From these considerations it becomes possible to explain a number of the arrangements found in aquatic animals, as compared with those that live in air. Still regarding the finny tribes, we find remarkably large gill slits in fishes of prey; and any one who has watched a pike or trout in pursuit of its prey, will have noticed how widely it has stretched its gill slits, so as to let the water flow off as freely as possible

on all sides. If this were at any moment to accumulate in the mouth-cavity, the fish's motion would be seriously compromised. It may with certainty be said that all fishes with remarkably wide gill slits hunt their prey in long pursuit. Thus, among our fresh-water predaceous fishes, the pike makes the longest pursuit and has the widest gills. As a contrast we might take the gently feeding and nibbling plant-fishes, such as barbel, carp, etc., which have narrow gill slits. A similar difference is associated with the streaming of water. As fish always snap with the mouth against the current, it receives more water into the mouth the more rapid the current; and, therefore river-fishes have, in general, larger gill slits than fishes which live in still water. Thus too may be explained the remarkable correlation between the width of the mouth slit and that of the gill slits, inasmuch as narrow-mouthed fishes have narrow gill slits, and wide-mouthed fishes wide gill slits.

Fossils.

BY CAPT. CARNES.

So great was the demand for fossil ivory more than a century ago, that the Russian government fitted out expeditions to gather it in the far north.

In 1770, a merchant named Lachow, while in the vicinity of Cape Sviatoinoss, saw a large herd of deer coming over the ice, and with great courage and resoluteness he pursued them, and passing over a distance of several miles he came to an island; farther on he came to another, both of which appeared so rich in mammoth bones that he obtained permission of the Russian government to dig for ivory on the islands which he had discovered. While at work about that region he discovered still another island, mountainous and covered with drift stuff.

Fossil ivory—this wonderful article of commerce—is found in North Siberia, along the Obi, the Jenissei, the Lena, and along the shores of the Polar Ocean, as far as the American side of Behring Strait. Here are deposited the remains of an immense number of elephants. Dozens of tusks are often found together; but in the Lachow Islands they have accumulated in such vast quantities as to form the chief material of the soil. Year after year the ivory hunters work away upon the thawing ice banks without seeming in the least to lessen the deposit of mammoth bones.

In 1821, 20,000 pounds of fossil ivory were procured on the one island of New Siberia. Occasionally the ice preserves entire bodies of non-extinct species of animals. In St. Petersburg they have preserved one of these skeletons, with specimens of its woolly hair, proving without doubt that the climate of Siberia in those remote and unknown ages was rigorous enough to demand a shaggy covering for its animal population.

The remains of a rhinoceros, of the kind found in the Indies, are deposited in immense numbers along the shores and steeps of Northern Siberia, together with fossil bones of the horse, musk ox and bison, animals which are not now found in the Arctic regions.

The Archipelago of New Siberia, situated north of Lachow Islands, is remarkable for the vast quantities of horse, buffalo, oxen and sheep bones, and also for the immense amount of fossil-wood imbedded on the barren and desolate shores. The hills, which rise to a considerable altitude, consist of horizontal beds of sandstone, alternating with bituminous trunks of trees. Ascending them, fossilized charcoal is everywhere met with, encrusted with an ash-colored matter which is so hard as to be scarcely scarred with a knife. On the summit of these hills are rows of beams standing perpendicularly in the sandstone; the broken projecting ends have the appearance of a ruined dike. So it appears that a primeval forest once flourished here in robust life, where now only hardy lichens are seen; and many herbivorous animals feasted upon rank grasses, where now the sturdy reindeer finds only a scant supply of moss, and where roams the Polar bear, sole monarch of the scene.

But when time shall crumble these stony and icy walls of the frigid zones, or science shall have opened their dumb lips with intelligible language, we may learn much concerning that age lying so far back in the past, that antediluvian history makes no mention of it, and which to day is a sealed book to us.

Plants that Eat Animals.

BY MARY TREAT.

The Bladderwort is a common plant, growing in shallow ponds and swamps; Dr. Gray in his *Manual of the Northern United States*, describes twelve species found within this range, and almost every muddy pond contains one or more of them. Some grow wholly or nearly out of water; but the species which I am about to describe are immersed, with finely dissected leaves on long stems floating in the water. Scattered among the leaves or along the stems which are destitute of leaves, are numerous little bladders.

About three years ago (in December, 1873,) a young man then at Cornell University and myself, on placing some of the bladders under the microscope, noticed animalcules—dead entomostraca, &c., apparently imprisoned therein. My curiosity was aroused. I soon found larger animals in the bladders—dead larva of some aquatic insect—large enough to be seen distinctly with the naked eye. But I was not aroused to earnest work until I watched the movements of an imprisoned living larva, and saw its struggles and final death. This was in October, 1874. I now visited the ponds and procured abundant material.

The plant that I experimented mostly with was the one known to botanists as *Utricularia clandestina*. The animal that I found most commonly entrapped was a snake-like larva, about the length of the mosquito larva, but more slender and of lighter color. I worked with this larva for several days, determined, if possible, to see him walk into the trap. I repeatedly took individuals from the water and placed them in the live-box with a spray of plant containing bladders; but it was of no use, the obstinate things would not accommodate me. The light or unnatural position, or both combined, made them fairly frantic, and they dashed about, paying no attention to the bladders.

Forced to give up this plan of seeing the larva enter the bladder, I now directed my attention to the smaller ones—animalcules proper. I placed the bladders in water inhabited by numerous tiny creatures, and soon had the satisfaction of seeing the *modus operandi* by which the victim was caught. The entrance into the bladder has the appearance of a tunnel-net, always open at the large end, but closed at the other extremity. The little animals seemed to be attracted into this inviting retreat. They would sometimes dally about the open entrance for a short time, but would sooner or later venture in, and easily open or push apart the closed entrance at the other extremity. As soon as the animal was fairly in, the forced entrance closed, making it a secure prisoner.

I was very much amused in watching a water-bear (*Tardigrada*) entrapped. It went slowly walking around the bladder, as if reconnoitering—very much like its larger namesake—finally it ventured in at the entrance, and easily opened the inner door and walked in. The bladder was transparent and quite empty, so that I could see the movements of the little animal very distinctly, and it seemed to look around as if surprised to find itself in so elegant a chamber; but it was soon quiet, and on the morning following it was entirely motionless, with its little feet and claws standing out as if stiff and rigid. The wicked plant had killed it very much quicker than it killed the snake-like larva.

Entomostraca, too, were often captured—*Daphnia*, *Cyclops*, and *Cypris*. These little animals are just visible to the naked eye, but under the microscope are beautiful and interesting objects. The lively little *Cypris* is encased in a bivalve shell, which it opens at pleasure, and thrusts out its feet and two pairs of antennæ, with tufts of feathery-like filaments. This little animal was quite wary, but nevertheless was often caught. Coming to the entrance of a bladder it would sometimes pause a moment and then dash away; at other times it would come close up, and even venture part way into the entrance and back out as if afraid. Another, more heedless, would open the door and walk in; but it was no sooner in than it manifested alarm, drew in its feet and antennæ and closed its shell. But after its death the shell unclosed again, displaying its feet and antennæ. I never saw even the smallest animalcule escape after it was once fairly inside the bladder.

The next step was to see how many of the bladders contained animals, and I found almost every one that

was well developed contained one or more, or their remains, in various stages of digestion. The snake-like larva above mentioned was the largest and most constant animal found. On some of the stems that I examined, fully nine out of every ten of the bladders contained this larva or its remains. When first caught it was fierce, thrusting out its horns and feet and drawing them back, but otherwise it seemed partly paralyzed, moving its body but very little; even small larva of this species that had plenty of room to swim about were soon very quiet, although they showed signs of life from twenty four to thirty-six hours after they were imprisoned. In about twelve hours, as nearly as I could make out, they lost the power of drawing their feet back, and could only move the brush-like appendages. There was some variation with different bladders as to the time when maceration or digestion began to take place, but usually, on a growing spray in less than two days after a large larva was captured, the fluid contents of the bladders began to assume a cloudy or muddy appearance, and often became so dense that the outline of the animal was lost to view.

Nothing yet in the history of carnivorous plants comes so near to the animal as this. I was forced to the conclusion that these little bladders, are in truth like so many stomachs, digesting and assimilating animal food.

Since writing the foregoing I have frequently trapped the snake-like larva and seen them enter the bladders. They seem to be wholly vegetable feeders, and specially to have a liking for the long hairs at the entrance of the bladders. When a larva is feeding near the entrance it is pretty certain to run its head into the net, whence there is no retreat. A large larva is sometimes three or four hours in being swallowed, the process bringing to mind what I have witnessed when a small snake makes a large frog its victim.

Dorrilism.

BY B. C. MORSBEE.

Of the strange religious creeds, which have ever prevailed in a civilized country, "Dorrilism" bears off the palm for being the strangest of all. Some persons may, perhaps, be inclined to disbelieve the fact that such a sect ever existed, yet its truth is vouched for by all historians.

This creed was originated in 1797, by a man named Dorril, one of the refugees of Burgoyne's army, who began to preach and advocate his doctrines about that time in the town of Leyden, Mass. He pretended to be gifted with supernatural powers, and promised his followers that if they obeyed his precepts they should never die. They discarded all revelation except that which Dorril had received, and set at defiance all laws, being governed, as they explained it, "by the light of nature."

They abstained from animal food, and made use of nothing which had been obtained at the expense of life. Leather shoes were thrown aside, and those made of cloth or wood were substituted. A blacksmith procured and used a pair of cloth bellows, and all subsisted upon a diet of milk and vegetables.

Meetings were held once a week, at which the exercises consisted of eating, drinking, singing and dancing, and hearing lectures from Dorril, who was well qualified for his position. These meetings were attended by great numbers of people, who came from far and near to hear him, and the number of converts increased every day.

At the close of the year 1798, one of the meetings was attended by Captain Ezekiel Foster, a man of gigantic stature and sound understanding. In his lecture on that occasion, Dorril said, "No mortal arm can hurt my flesh." No sooner had he uttered those words than Foster knocked him down. He attempted to rise and received a second blow, upon which he cried for mercy. Foster promised to forbear on condition that he would renounce his doctrines. After a short parley he consented, and did renounce his doctrines before his astonished followers.

He also told them that his object was to see what fools he could make of mankind.

CHINA possesses coal fields to the extent of 400,000 square miles; one province (Shausi) having no less than 31,000 square miles, with veins from 12 to 30 feet thick.

Pompeii.

Pompeii, that beautiful and ill-fated city, buried underneath the shower of ashes, pumice and stone cast forth from Vesuvius, A. D. 79, and first re-discovered in 1649, and now a ruin of world-wide interest, is said to have derived its name from the word *pompe*, with reference to the pomp with which Hercules, its founder, celebrated his victories. The frescoes, which have outlived 1769 years concealment, are brilliant yet in the forum and the temples. The art of fresco painting is still with us in practice, but the records of a medium of preservation so durable as to withstand the fire and damp of centuries is lost with the people, cunning and rich, whose hands wrought the beauties of Pompeii. In the houses of this excavated city, the dining hall is always found most beautifully decorated. In these noble rooms the Romans reclined at feasts, at which small fortunes were expended. It is said of Lucullus that once, wishing to deceive Pompey or Cicero when they insisted upon dining with him *en famille*, he simply sent word home that he would dine in the room called "The Apollo," where it was said he never gave a supper for less than a sum amounting to \$9,000 of our money. In the house of Scaurus, the most marvellously rich frescoes adorned its walls, and lamps of bronze gave brilliant light. The tables were of citron wood, resting on ivory feet, and were covered with a plateau of solid silver, chased and carved, weighing five hundred pounds. The three couches were of bronze, overlaid with ornaments of silver, gold and tortoise-shell; the feather cushions were of stuff of silk and threads of gold. Pliny says of the tables of citron wood that they were made of the roots and knots, and prized for their veins and marks, which resembled a tiger's skin or peacock's tail. In a further description of this dining hall of Scaurus, in Pompeii, it is stated that the floor was finished in mosaics representing the fragments of a feast, as though just fallen from the table—hence it was called the "unswept saloon."

The Monkey.

BY B. SMITH.

Monkeys are very vivacious and amusing, but they are often bad; tearing up clothing, breaking bottles and cutting various capers is a monkey's delight. They will stand and mimic as long as they have anything to mimic; they are also inveterate imitators. A lady had one, whom she found dressed up in her clothes and admiring himself before the glass; he also had her ribbons and things scattered over the floor in a very confused manner; that is, in a manner peculiar to a vivacious little monkey. They also are very sensible; we will give the case of some ring-tailed monkeys bridging a stream. Sooner than go into water a monkey will put his head into the fire. When they cannot leap a stream they will bridge it. My readers will perhaps wonder how a monkey can bridge a stream, but they will soon see. An eyewitness of the following, says: One, an aid-de-camp, or chief pioneer, perhaps, ran out upon a projecting rock; and after looking across the stream, as if calculating the distance, scampered back and appeared to communicate with the leader. This produced a movement in the troop. Commands were issued and fatigue parties were detailed and marched to the front. Meanwhile several, engineers no doubt, ran along the bank, examining the trees on both sides of the *arroyo*. At length they all collected around a tall cottonwood that grew over a narrow part of the stream, and twenty or thirty of them scampered up its trunk. On reaching a high point, the foremost ran out upon a limb, and taking several turns of his tail around it, he slipped down and hung his head downward. The next on the limb, also a stout one, climbed down the body of the first, and whipping his tail tightly around the neck and forearm of the latter, dropped off in his turn, and hung head down. The third repeated the manoeuvre upon the second, and the fourth upon the third, and so on until the last upon the string rested his forepaws on the ground. The living chain now commenced swinging backward and forward, like the pendulum of a clock. The motion was slight at first, but gradually increased, the lowermost monkey striking his hands violently on the earth as he passed the tangent of the oscillating curve. Several others upon the limbs above aided the movement. This continued

until the monkey at the end of the chain was thrown among the branches of a tree on the opposite bank; here, after two or three vibrations, he clutched a limb and held fast. This movement was adroitly executed just at the culminating point of the oscillation, in order to save the intermediate links from the violence of a too sudden jerk! The chain was now fast at both ends, forming a complete suspension bridge, over which the whole troop to the number of four or five hundred passed with the rapidity of thought. It was a very comical sight to witness the quizzical expression of countenances along that living chain! The troop was now on the other side, but how were the animals forming the bridge to get themselves over? Manifestly, by number one letting go his tail. But then the *point d'appui* on the other side was much lower down, and number one, with half a dozen of his neighbors, would be dashed against the opposite bank or soured into the water. Here was a problem, but it was soon solved. A monkey attached his tail to the lowest on the bridge, another girded himself in a similar manner, and another, and so on till a dozen more were added to the string! These last were all powerful fellows; and running up to a high limb, they lifted the bridge to a position almost horizontal. Then a scream from the last warned the tail-end that all was ready, and the next moment the whole chain was swung over and landed safely on the opposite bank. The whole troop then scampered off and disappeared. Now in this instance there was reason almost human. Indeed, the celebrated Dr. Darwin says that men came from monkeys, and I do not dispute it, but I do not say it is true; my readers will be left to judge for themselves. Of the many readers of the GROWING WORLD, both young and old, some one perhaps may be able to give us a correct opinion.

There are very many species of monkey, some so much like man that were it not for his coating of hair the casual observer could hardly distinguish the monkey from a man. Nearly every species is found in South America and the West Indies; in South America there are preaching monkeys, weeping monkeys and howling monkeys, and many other kinds too numerous by far to be mentioned here. There are many kinds also in the East Indies and Africa; neither is India wanting in monkeys. I will give an anecdote of some monkeys in India. A gentleman who was spending a short time with a friend in India, had been out shooting, and returning had reached within a mile or two of the bungalow, when, passing by a pleasant river, he thought a bath would be a most renovating luxury; he sent home his servants with an intimation that he would shortly follow. So stripping, and placing his clothes very carefully on a stone, he began to luxuriate in the water. He was a capital swimmer, and had swam to some distance, when, to his horror and dismay, on looking to the place where he had left his habiliments, he perceived a dozen monkeys overhauling his entire wardrobe. One was putting his legs through the sleeves of his shirt, another was cramming his head into his trowsers, a third was trying to find whether any treasures were concealed in his boots, while the hat was found a source of wonderment and amusement to some two or three others who were endeavoring to unravel its mystery by ripping the lining and taking a few bites out of the brim. As soon as he had regained his mental equilibrium (for the thing was so ridiculous that it made him laugh heartily,) he made with all haste toward the shore; but judge of his perplexity when he saw these mischievous creatures each catch up what he could lay hold of and rattle off at full speed into the jungle. All he heard was a great chattering as they, one by one, disappeared, the last one lugging off his shirt, which being rather awkward to carry, was continually tripping it up by getting between its legs. And here he staid till the inmates of the bungalow, beginning to suspect some accident, came out in search and found the gentleman sitting in the water up to his neck, in a frame of body and mind which we may conceive to be more easily imagined than described.

A certain family once had a common monkey for a pet. On one occasion the footman had been shaving himself, the monkey watching him during the process; when he carelessly left his apparatus within reach of the creature. As soon as the man was gone out of the room, to try his imitatorial powers the monkey got the razor and began to scrape away at his throat, as he had seen the footman do, when, alas! not understanding the na-

ture of the instrument he was using, the animal cut its own throat, and before it was discovered bled to death.

Monkeys are very sagacious, and they often undertake robberies with surprising skill and regularity. Their robberies seem to be the result of well-concerted plans. If about to rob an orchard or a vineyard, they set to work in a body. A part enter the enclosure while one is set to watch. The rest stand without the enclosure and form a line reaching all the way from their companions within to their rendezvous without, which is generally some craggy mountain. Everything thus disposed, the plunderers within throw the fruit to those that are without as fast as they can gather it, or, if the wall or fence be high, to those that sit on top, and these hand the plunder to those next them on the other side. Thus the fruit is pitched from one to another all along the line, till it is securely deposited at headquarters. During the proceedings they maintain the most profound silence; their sentinel continues on the watch extremely anxious and attentive. But, if he perceives any one coming he instantly sets up a loud cry, and at this signal the whole company scamper off. Nor yet are they at any time willing to leave the place empty-handed; for, if they be plundering a bed of melons, for instance, they go off with one in their mouths, one in their hands, and one under their arm. If the pursuit is hot, they will drop first that from under the arm, and then that from their hand; and if it be continued, they at last let fall that which they had hitherto kept in their mouths. A tribe of monkeys called mottled baboons mostly rob in this way; they appear to be under a sort of natural discipline.

Monkeys watch over their young with great assiduity, and appear to educate and train them upon a general plan. Their parents procure for them every possible comfort, and they preserve among them a due share of discipline, and seem even to hold them in subjection; they appear to watch their antics with great delight.

The First American Locomotive.

Just beyond the west end of Machinery Hall, at the Centennial Exhibition in Philadelphia, in the open air, is the first locomotive ever run in America, and which is attached to two passenger cars such as were used in 1833. Both the locomotive, cars, and the track upon which they stand, are such curiosities in their way, in comparison to those used to-day, that we will give our readers a description of them. The rails are not attached to wooden cross-ties, but to great square stones, upon which are placed thin blocks of wood, as it was considered unsafe in those days to run an engine which weighed nine tons on rails affixed to anything so frail as wood. The rails are much lighter than those used to-day, were rolled in England, and then shipped to America at great expense. The locomotive, "John Bull," was built in England in 1831, and then shipped to America. On the arrival of this locomotive at Bordentown, N. J., it was transferred from the sloop on which it had been brought from Philadelphia, by means of wagons to the only permanent track of the Camden and Amboy Railroad Company then completed, about three-fourths of a mile in length, and about one mile from Bordentown. The machinery was then put together, and a tender constructed from a whiskey hoghead placed on a small four-wheeled platform car, which had been used by the contractor in the construction of the road. The connection between the pump of the locomotive and the water tank was made by means of a leather hose made by a shoemaker. This engine first began to run in 1833, and took the place of horses, which had been used up to that time. The cylinders are nine inches in diameter, have twenty-inch stroke, and are placed underneath the front end of the boiler, in between the two front driving wheels. There are two pairs of these driving wheels, four feet six inches in diameter, which are not coupled together, so that the force of the steam on the piston is exerted on the rear pair alone. The cow-catcher consists of two long wooden beams, which have their rear ends pivoted to the outside ends of the shaft of the front pair of driving wheels, while the front ends of the beams are supported upon a special pair of wheels three feet in diameter. In order to prevent this catcher from rising too high, it is held down upon the rails by a coiled spring. There is no cab for the engineer and fireman, and the only protection whatever given to them from the cold, heat, wind, rain and

snow, is that the front end of the roof of the little tender projects slightly over the rear end of the locomotive. The funniest feature is a covered seat, such as are used on wagons, but only large enough for one person, which is placed on the top of the big covered box that forms the tender, and which seat is turned so that the person sitting in it looks back over the train. The two cars are each about thirty feet long, and look more like the "Black Marias" that are used to convey prisoners from the different stations than passenger cars. The windows are about twelve inches high by six inches wide; are not made to be raised or opened, and are furnished with sliding curtains. Above each seat is a ventilator two feet long by six inches wide, so that each one can ventilate for himself.

In Machinery Hall there are about a dozen of locomotives of all kinds and sizes, one of which is one of sixteen purchased by Dom Pedro to be sent to Brazil, and is named after him. The locomotives built in England and America differ principally in two particulars. The Americans place their cylinders outside of the driving wheels, while the English place theirs in between them, under the front end of the boiler. The Americans never use driving wheels larger than about five feet in diameter, while the English have always made them from six and a-half to eight and a-half feet in diameter. As long as the track is perfectly level these immense wheels are just what is needed, but as soon as grades are encountered, they only impede the progress of the train, and the English are now beginning to realize this, and are discarding these immense drivers, and adopting the American plan of never having them over about five feet. To the Americans are due some of the finest and best improvements in the locomotive. America has built the largest passenger engine ever made, also the largest coupled engine, but the latter was a failure, owing to the false theory on which it was built. As a general thing, the English run their cars faster than the Americans, but this is owing to better ballasted roads and more uniform levels

Ball Lightning.

BY GEORGE ELLIS.

Fireworks are very fine things in their way, and we always did admire the vivid flashes of a dark summer thunder storm. But there are certain displays of the sort which have occasioned more alarm than admiration.

During severe storms, electricity sometimes takes a fancy to play around in the shape of huge fire-balls, which waver about above ground in an easy way, much like the little red balloons in which the children so delight. But woe to any person or anything that comes in the way when these fire-balls "light."

A laboring man, going home from his work one evening, in a summer shower, saw just before him a large, glowing ball hovering a few feet above the earth, and his surprise was not unmixed with alarm. He was walking on haunted ground, for hard by was an Indian mound, where some old bones and hatchets had been disturbed, and it was naturally supposed that the old braves to whom they once belonged felt mad about it, and came back occasionally to make a fuss. This fire-ball might have something to do with their ire. However it might be, he resolved to give it a wide berth. It was well he did, for the next minute it came in contact with a tree, splintering it into kindling wood and making a great explosion.

A gentleman was once sitting in his room, by a table, when a ball came down the chimney and entered the room, floating about quite at its ease, and approaching in a playful way the gentleman's feet. He was not pleased with such a suspicious visitor, and gently moved to one side to see what it would do next. It hovered up and down and finally went straight for a pipe hole that was above the mantel.

"And yet," said the man, "it could not see the pipe-hole as it was covered by the wall papering."

However, it cut its way neatly through, and ascended the chimney again in safety; but at the top of it, it must have touched the rim, demolishing the chimney and sending down a rattling shower of bricks and mortar.

Such cases of ball-lightning have been frequently seen at sea, and have proved very destructive to ships' masts and rigging.

Lapis Lazuli.

This mineral, which is called azure stone by the vulgar, is of a magnificent blue color, sometimes spangled with beautiful gold spots, from flakes of sulphuret of iron throughout its mass. It occurs in shapeless blocks, or rounded pebbles, or, at times, in prismatic forms, having sides, obliquely set. It is of a compact grain, opaque and hard; will cut glass, and strike fire from steel. It is found principally in Persia and the neighborhood of Lake Balkal in Siberia, and is highly prized for jewelry and ornamental work. The purest specimens are reserved to cut for gems, and to make those rare Florentine mosaics so much admired. A quality less rich goes to the decoration of the houses of the wealthy. The halls of the Orloff Palace, at St. Petersburg, are papered throughout with lapis lazuli from the Grand Bankharrie. The coloring matter of this stone gives that beautiful blue which is called ultramarine, not because it is beyond a sky blue, but because it was brought from beyond the sea, namely, the Levant. It is procured in a sort of soap-making process, by the use of chemical agents. Exposed to a strong fire, the mineral mass melts to a yellowish-black paste. Simply calcined, it is deprived of its color by strong chemicals, and leaves a pot of jelly. There exist some massive fragments of lazulite, but the mineral is usually combined with foreign matters, so that a specimen quite pure and bulky attains a high price. The French treasury has a magnificent lazulite cup, shaped like a sea shell, and worth two hundred thousand francs, or forty thousand dollars.

There is also a bowl, or hand dish, valued at sixteen thousand dollars, which were cheap if it gave French rulers clean hands; and there, too, you may see a saber, with a lazulite hilt, worth twelve thousand dollars, the gift of Tippoo Saib to Louis XVI.; and three chaplets, of a thousand francs each, on whose beads of lazuli the royal nobles said their prayers lazily when the Red Republicans were not after them.

First Steamboat on the Hudson.

The steamboat itself is a romance of the Hudson. Its birth was on the waters, where the rude conceptions of Evans and Fitch on the Schuylkill and Delaware were perfected by Fulton and his successors. How strange is the story of its advent, growth and achievements! Living men remember when the idea of steam navigation was ridiculed. They remember, too, that when the Clermont went from New York to Albany without the use of sails, against wind and tide, in thirty-two hours, ridicule was changed into amazement. That voyage did more. It spread terror over the surface of the river, and created wide alarm along its borders. The steamboat was an awful revelation to the fishermen, the farmers, and the villagers. It came upon them unheralded. It seemed like a weird craft from Pluto's realm—a transfiguration of Charon's boat into a living fiend from the infernal regions. Its huge black pipe, vomiting fire and smoke, the hoarse breathing of its engine, and the great splash of its uncovered paddle-wheels, filled the imagination with all the dark pictures of goblins that romancers have invented since the foundation of the world. Some thought it was an unheard-of monster of the sea ravaging the fresh water; others regarded it as a herald of the final conflagration at the day of doom. Managers of river craft who saw it at night believed that the great red dragon of the Apocalypse was loose upon the waters. Some prayed for deliverance; some fled in terror to the shore and hid in the recesses of the rocks, and some crouched in mortal dread beneath their decks and abandoned their vessels and themselves to the mercy of the winds and waves or the jaws of the demon. The Clermont was the author of some of the most wonderful romances of the Hudson, and for years she was the victim and enemy of the fishermen, who believed that her noise and agitation of the waters would drive the shad and sturgeon from the river.

A Roman Tunnel in Algiers.

Several civil engineers, engaged with the surveys for a water conduit from Touja to Bougie, have made a very interesting and important discovery. A mountain, which was situated in the proposed line of the conduit, was to be tunneled for a length of 500 yards; and, in searching

for the most suitable place, the engineers discovered an ancient tunnel, six feet eight inches in height, and nineteen feet seven inches in circumference. It is supposed that this is the same tunnel mentioned in an epigraph found at Lambeec, according to which the tunnel was built in the reign of Antonius Pius, the plans being proposed by a veteran of the Third Legion, named Nominus Dutus. Finding works like this after a time of 2,000 years, we cannot but be greatly astonished at the power, energy, and genius of a nation which produced, with the limited means available at those times, such gigantic structures.

Everlasting Fire.

In the neighborhood of Baku, on the Caspian Sea, there is a phenomenon of a very extraordinary nature called the everlasting fire, to which a sect of Indians and Persians called Gaurs pay religious worship. It is situated about ten miles from the city of Baku, in the province of Shirvan, on a dry, rocky piece of ground.

On it there are several ancient temples, built of stone, and supposed to be all dedicated to fire, there being one among them in which fire-worship is now carried on. Near the altar there is a large, hollow cane from the end of which issues a blue flame. The worshippers affirm that this flame has continued ever since the deluge, and they believe if it were suppressed in that place it would break out in another.

At a short distance from this temple there is a horizontal gap, two feet from the ground, about six feet long and three broad, out of which comes a constant flame of the color of that in the temple. When there is a strong wind it rises to the height of eight feet, but is much lower in calmer weather.

The earth around, for more than two miles, has this extraordinary property, that by taking up two or three inches of the surface and applying a lighted lamp, the part uncovered immediately takes fire, even before the flame touches it. The flames make the soil hot, but do not consume it nor affect what is near with any degree of heat.

It is said that eight horses were once consumed by this fire under a roof where the surface of the ground had been turned up and by some accident had ignited. If a cane or tube of paper be set about two inches into the ground, closed with earth below, and the top of it touched with a live coal, a flame will immediately issue forth without consuming the tube, provided the edges be covered with clay. Three or four lighted canes will boil water in a pot, and are sometimes used to cook victuals. The flames have a sulphurous smell but are inoffensive.

The Natives of Ceylon.

The entire population of Ceylon is two and one-quarter millions, the native portion of which is divided into three classes: the Cinghalese, or original inhabitants of the island; the Tamils, of the same race, and speaking the same language with the people of Madras, and the Mohammedans, from northern India. The Cinghalese are a handsome people, well formed and graceful, but effeminate, and as utterly unreliable as other Asiatic races. Men and women alike wear the hair long, and fastened in a knot at the back of the head, while the top of the head is invariably ornamented with a circular tortoise-shell comb. Both sexes wear short jackets, and a long strip of cotton or silk fastened by a belt to the waist, and falling to the feet. The dress of the children, up to eight or ten years, consists of a silver band about the neck, and a silver or coral ring on each ankle and wrist—"merely this and nothing more"—a costume easily kept in order, and remarkably well adapted to the climate. These children are the prettiest and most agile little creatures imaginable, and as full of mischief and sprightly tricks as so many monkeys. The natives are remarkably cleanly in person and dress, usually bathing twice and thrice each day; but the habit of chewing the betel leaf and areca nut, indulged in by the young and old alike, gives an appearance to the teeth and lips very disgusting to the foreigner. The houses of the natives are mere palm-leaf or mud huts, but quite sufficient for their wants, as they live mostly out of doors, leading an idle, careless life, satisfied if the wants of to-day are supplied, and most literally "taking no thought for the morrow, for the morrow shall take thought for the things of itself."

CACTI AND AGAVES,

After fighting the world of business and amassing

The well-to-do individual depicted by our artist has bent his mind in the direction of cacti-growing, and is making his daily round of inspection. Probably no class of plants require more heat and less



THE ENTHUSIASTIC BOTANIST.

a fortune, the merchant, who retires to a house in the country, feels the time hang heavy upon his hands, and usually finds a solace in some such hobby as botany or natural history.

moisture than these, and many persons have failed in cultivating them simply through drenching the structures with water.

The cactus is almost an air-tight plant; a provision

of nature to prevent the sun from drying them up. In the rocky homes of this plant there is sometimes for months together a dearth of rain or dew, yet the plants are not materially affected, and even when sickly heal again.

If it were not for the sharp thorn with which they are provided the plants would soon be eaten off the face of the earth.

In a cold climate their growth may be indefinitely retarded; but subjected to the warm rays of the sun, they assume their natural proportions. Some years ago a West Indian merchant happening to be in Covent Garden, London, saw exposed for sale very diminutive cacti; each plant was in a tiny pot, about an inch in height, and he noticed with great delight that one of them was a well-known West Indian species, famous for its immense proportions and gigantic growth. "Are these dwarfed by any means?" he inquired of the black-eyed deity who presided at the stall. "Oh, no, sir!" she replied, "them's quite grown. They'll never grow any bigger." Fortified with this assurance he purchased one, placed it in a box, and took it to his hotel and placed it among his effects. In due time he started for home, and on the way—I being a fellow passenger—he exhibited his diminutive plant. Two years after the time he landed at Saint Thomas, I visited him, and happening to inquire about his miniature cactus, was taken into the veranda of his house. Pointing to an immense candle-cacti, like the mast of a sloop-of-war, he said: "That's the miniature plant. It no sooner felt the warmth of its natural climate than it started growing; outgrew the house and was banished to the veranda. One day a hurricane blew it from the rail into the garden, where it took root as readily as a duck takes to the water. It's now forty feet in height, and if it continues to grow will double its present proportions.

The *cactaceæ*, comprising numerous species, are all natives of the American continent. Their branching stems present the most varied, often the most grotesque forms. Sometimes they are erect, like a tall fluted column; at others they are massed together like a solid sphere, tapering off into cylindrical branches, or flattened after the manner of the Indian Fig. In short, nothing is more varied than the aspect of the numberless cactuses, which grow naturally in strange profusion in America, and which art has brought together in great quantities for the purposes of study and gratification both in this and foreign countries.

Their appearance is interesting by reason of the roughness of the stalks and the beauty of the flowers. Found chiefly in the hot stony places of tropical America; their stems are filled with an abundant juice, which, being enclosed within a tough and impermeable skin, enables them to support a sluggish vital action without inconvenience in a parched soil. They vary in stature from creeping stems to angular ascending trunks, sometimes thirty feet in height. The flowers, varying from pure white to rich scarlet and purple, are much increased in size and brilliancy by cultivation in gardens and greenhouses. They thrive, however, only in the poorest soil. More than sixty species of cacti have been described.

The *C. melocactus*, the great melon thistle, or Turk's cap (a specimen of which our enthusiastic botanist is examining) grows from the apertures of rocks in the driest and hottest parts of America; it appears like a green melon, with deep ribs, set all over with sharp thorns, and was likened by Linnæus to a hedgehog. It attains a height of four or five feet in the West Indies, and has been brought to more than half the size in the New England states. In times of drought in their native soil they are ripped up by the cattle, and their moist internal part greedily devoured.

The *C. Opuntia*, prickly pear, or Indian Fig, derives its name from Opus, in Greece, where it was indigenous, although like the others, a native of America; it also grows wild in Italy, and flourishes in the lava at the foot of Mt. Etna; it is cultivated in England and America for its fruit, upon which the Indians of Florida lived almost exclusively for three months of the year.

The *C. Tuna* is used for hedging; three rows of it were planted as a boundary when the island of St. Christopher was divided between the English and French.

The *C. Cochinillifer* is the chief nourishment of the cochineal insect.

All the species of cactus are best cultivated in a sandy loam mixed with brick rubbish.

The other plants shown in the collection of the enthusiastic botanist are American agaves or aloes, which have a short cylindrical stem, terminating in a circular cluster of hard, fleshy, spiny, sharp-pointed, bluish-green leaves, each of which leaves continues to exist for many years, so that but few have withered when the plant has arrived at maturity. It is a popular error, that this only occurs at the expiration of a hundred years, when the tree flowers and again lies dormant, so far as its efflorescence is concerned, for another century, and again produces its centennial floral tribute. The American aloe varies according to the region in which it grows, in the period of its coming to maturity, from ten to seventy years. In hot climates it grows quickly. In colder countries, where it is cultivated as an exotic, it often requires the full period assigned to it before it has attained its maturity. So soon as it does so, it sends forth a stem forty feet in height, which puts out numerous branches, forming a cylindrical pyramid of perfect symmetry, each crowned with a cluster of greenish-yellow flowers, which continue in perfect bloom during a period of several months in succession.

The natural country of the aloe is the whole intertropical region of America, in which it flourishes from the sandy plains on the level of the sea, to the table lands of the mountains, at a height of nine to ten thousand feet. From these regions it has been transported to almost every temperate region. In the United States, England and France, it is a tender green-house plant; but in Spain, Italy, Sicily, and the Barbary States, it is perfectly naturalized, and gives to those beautiful countries a picture of tropical vegetation, mingled with the foliage and scenery of temperate Europe. It is applied to many uses by the natives of the lands in which it grows. From its sap, drawn from incisions in its stem, is made *pulque*—a fermented liquor. A coarse sort of thread is made from the fibers of the leaves, known as the petal flax. The dried flower stems constitute a thatch perfectly impervious and proof against weather; while from an extract of the leaves boils are manufactured, which can be made to lather like soap; and from the center of the stem, split longitudinally, a substitute is obtained for a hone or razor strop, which, owing to the particles of silica which form one of its constituents, has the property of speedily bringing steel to a fine edge.

In one sense, and in only one, is it true that the American aloe flowers but once in a hundred years. For this plant—like some of the ephemeral insects, whose whole business appears to be once to procreate their species and then to die—no sooner has it flowered—at whatever period of its existence that fact may occur—and thus discharged its duty of regeneration, than it at once withers and dies, like the Phoenix, that "secular bird of ages," which never lived to look upon its offspring and successor.

The juice of the leaves of different species of aloe forms the aloes of commerce. The processes of preparing the drug are various. Sometimes the leaves are cut off at the stem, then cut in pieces, and the juice drained off in iron vessels. It is then suffered to stand forty-eight hours, during which time the dregs are deposited, and the remaining portion is poured off into broad flat vessels and becomes inspissated. In other places the leaves are pulled, and after being cut in pieces, the juice is extracted by pressure.

Of all the wonders that have been gathered from every quarter of the globe to grace our hundredth birthday at the Centennial Exhibition, there is nothing more rarely beautiful than the wealth of plants and flowers that fill the graceful Moorish structure erected for their display. Those of our readers who visit the Exhibition will find many fine and curious specimens of both Cacti and Agave plants in the tropical department of this building known as Horticultural Hall; besides many other strange growths unfamiliar to Northern eyes, the sight of which alone is well worth a visit to Philadelphia.

A French journalist says that M. Thiers is an enthusiastic horticulturist. He possesses a fine assortment of Cacti and Agaves among his collection of rare plants. He knows each flower in his garden and treats it as a personal friend. The semi-circular pleasure ground at the back of his mansion in Paris, is tended

by two gardeners. The master's ideal is so high that they scarcely suffice for the work. There is no fresher or more delicious spot in Paris than this oasis. Birds are encouraged to settle in it. The Commune did not destroy the old trees; but a fine poplar and mountain ash were killed by the demolition dust.

No true American, says a correspondent, will ever allow that we have not the best country in the world, taking everything into consideration; but I must confess that there are countries more beautiful. In the one hundred and fifty miles that we travel in going from Havre to Paris, there is scarcely an acre of uncultivated ground, with the exception of the parks belonging to large estates. The villages all look very old; the houses are of gray stone, with sharp-pointed roofs rising one above the other, with a little church half fallen to decay in their midst.

Every house has a flower garden, even to the railway stations. The people are all enthusiastic about plants and flowers. The little gardens were one mass of color—purple heliotrope, tea roses, scarlet geraniums, red roses and pinks; always framed in with the dark, glossy, green leaves of the ivy that grows everywhere with the greatest luxuriance.

Leigh Hunt must have seen such before he wrote—

"See—and scorn all duller

Taste—how Heaven loves color!

How great Nature clearly joys in red and green;

What sweet thoughts she thinks

Of violets and pinks,

And a thousand flashing hues born solely to be seen;

How her silver lilies

Chill the whitest showers

And what a red mouth is her rose,

The woman of her flowers!"

There are no fences around the fields; they are simply laid out in very straight rows, and planted with different kinds of vegetables, with occasionally a grass plot or small field of grain between. The different shades of green give a most beautiful effect to the landscape. I remember many a controversy in America, when a man has been obliged to build a new fence, and in digging a larger post-hole has perhaps encroached an inch or so upon the domain of his neighbor; but I have never heard of the different owners here having any trouble, even with no fences at all. There is not a stone or a stick to mar the perfect smoothness and beauty of those fields, nor an inch of ground uncared for. They are intersected at intervals by roads, bordered on either side by rows of tall poplars—roads so smooth, so hard and white, that one longs to gallop over them.

Occasionally as we rush along we see a little stone house and out-buildings, all with thatched roofs, and with the inevitable flower-garden attached; then on yonder hill we see a magnificent chateau, with the long shady avenues leading to it; then a ruined monastery; then a green field, with a little boy and a dog to guard him. Then coming down the white road we see an old peasant woman, with her quaint white cap, in a funny little donkey-cart; and over all, the glorious sunny sky of France. No wonder they call it *la belle*, or that every Frenchman loves his country.

The Great Earthquake.

BY B. C. MORSEEE.

The most destructive earthquake which history records occurred on the first day of November, 1755. It agitated the whole of Europe and a part of Africa. It even extended across the Atlantic Ocean to America, causing the waters in the harbor of Boston to rise to the height of thirty feet; but nowhere did it do any great amount of damage, save in the city of Lisbon, in Portugal. There over eighty thousand people perished. The whole city was destroyed, and ruin and devastation spread for miles around.

It was All-Saint's Day, and every church was crowded with people who had come from far and near to attend the festival. At twenty minutes before ten that morning a low rumbling noise, sounding like the mutterings of distant thunder, was heard. Soon a slight shock was felt, then a heavier one, then a number in rapid succession, and in six minutes, more than thirty thousand people were buried under the ruins of the churches. Fifty thousand more perished before the close of the disaster.

A broad marble quay had just been built on the banks of the Tagus, and here three thousand persons sought refuge from the falling buildings. A huge wave, more than forty feet high, swept over them and immediately receded, carrying them far out to sea. After the earthquake had spent itself, water covered the quay to the depth of several hundred feet. Fires now kindled in the fallen buildings and aided in the work of devastation. The ground continued to be agitated for several weeks, and in December following another severe shock was experienced.

The most remarkable circumstance connected with this earthquake was the great amount of territory over which it extended. According to Humboldt, it was felt over a surface equaling in area four times the size of Europe, or fourteen million two hundred and sixty thousand and eight hundred square miles.

Depths of the Ocean.

It has been ascertained by soundings that the roaring waves and the mightiest billow of the ocean repose, not upon hard and troubled beds, but upon cushions of still water; that everywhere at the bottom of the deep sea, the solid ribs of the earth are protected, as with a garment, from the abrading action of its currents; that the cradle of its restless waves is lined by a stratum of water at rest, or so nearly at rest that it can neither wear nor move the lightest bit of drift-stuff that once lodges there.

The uniform appearance of the microscopic shells, and the almost total absence among them of any sediment from the sea or foreign matter, suggests most forcibly the idea of perfect repose at the bottom of the deep. Some of the specimens are as pure and as free from sand as the fresh fallen snow-flake is from the dust of earth.

Soundings seem to prove that showers of these beautiful shells are constantly falling down upon the ocean floor, and the wrecks which strew the sea-bottom are, in the lapse of ages, encrusted over with these tiny, deecy things, until they present the rounded outlines of bodies buried beneath the snow-fall.

The ocean, especially near and within the tropics, swarms with life. The remains of its myriads of moving things are conveyed by currents, and scattered and lodged in the course of time, all over the bottom. This process, continued for ages, has covered the depths of the ocean as with a mantle, consisting of organisms as delicate as hoar-frost, and as light in the water as down in the air.

CAPTAIN CARNES.

Trout in Wells.

Few people are aware of the quantity of dirt that falls into a well and increases the impurity of the water. This filth comes in the form of worms, flies, bugs, grasshoppers, and everything in the insect tribe that flies or crawls about the yard. Nine-tenths of this insect filth would be eaten by a good sized trout, and when once put in a well a trout requires but little attention other than to give him a few bread crumbs in winter and flies and grasshoppers in the summer, for in eating habits a trout is as voracious as a crow, or, like him, can subsist on a very small quantity of food. In my well a common brook trout had nothing to eat save what fell into the well by accident, and a few grasshoppers in summer, for five years, yet, in the aquarium a trout six inches long will eat two or three minnows in a day, and when first taken from the brook he will eat double that number of minnows two inches long. Yet in the well tended aquarium this speckled member of the finny tribe excels the trout in his native haunts as much as the high garade or full-blood short-horn the ordinary native steer. In fact, I think this a truthful comparison, and any one who is familiar with the trout in the shaded pool of sparkling water and in the aquarium will indorse this assertion. Although a trout has a large mouth and can "eat his bigness" for breakfast, dinner and supper, I would not put a smaller than a six inch trout in a well, and only one, unless great care can be exercised to feed them regularly, for the larger will devour the smaller. Considerable pleasure can be derived from seeing a trout in the well come to the surface of the water, and sometime out of the water, to take a fly or grasshopper thrown to him. Aside from the pleasure, the greatest argument in favor of putting him in our wells is that of cleanliness. The measure of dirt we must eat in a lifetime has been fixed at one peck, yet our ancestors wisely kept from settling the quantity we should drink, for open coverings and untight curbs make a wide variation in the circumstances attending our draughts. Let us divide with the trout, who is better entitled from his cleanly habits to share the undesirable.

M. G.

A single codfish produces more than a million of eggs in a season.

Another Sea Monster.

In the month of October last, the British steamship *Nestor* arrived at Shanghai from the Straits of Malacca. Shortly after the anchoring of the vessel at Shanghai, John K. Webster, the master, and James Anderson, the ship's surgeon, appeared before Mr. Donald Spence, Law Secretary in her Britannic Majesty's Supreme Court, and made affidavit to the following marvelous statement of facts:

We, John Keiller Webster, of Liverpool, and James Anderson, surgeon, of Liverpool, do solemnly and sincerely depose as follows: And first, I, the said John Keiller Webster, in command of the steamship *Nestor*, do declare that on Monday, the 11th day of September, at 10:30 A. M., fifteen miles northwest of North Sand Lighthouse, in the Malacca Straits, the weather being fine and the sea smooth, the air also perfectly clear, I saw, a little forward of the beam, on the starboard side, about 200 yards distant from the ship, an object first pointed out to me by my third officer, who remarked, "There is a shoal." Surprised at finding a shoal in such a well-known track, I watched the object and found that it was in movement, keeping up the same speed with the ship, and retaining about the same distance as when first seen. The speed of the ship was nine and three-quarter knots, and the animal was moving parallel with us during six minutes. Just after I observed it the Chinese deck passengers discovered it and raised a great outcry, and about the same moment it was descried by three saloon passengers and the surgeon. The shape of the creature—for that it was alive there is no doubt—I would compare to that of a gigantic frog. Referring to the head and body, as far as they were apparent above the water, the head, of a pale, yellowish color, was about twelve feet in length, and six feet of the crown was above the water; occasionally the head subsided until only a foot or a foot and a half remained above the water. I tried in vain to make out the eyes and mouth; the mouth, however, might have been below water. The head was immediately connected with the body, without any indication of a neck. The body was about forty-five or fifty feet in length, and of an oval shape, perfectly smooth, but there may have been a slight ridge about the spine. The back rose some five feet above the surface. An immense tail, fully 150 feet in length, rose a few inches above the water. This tail I saw distinctly from its junction with the body to its extremity; it seemed cylindrical, with a very slight taper, and I estimate its diameter at four feet. The body and tail were marked with alternate bands of stripes, black and pale yellow in color. The stripes were distinct to the very extremity of the tail. I cannot say whether the tail terminated in a fin or not. I examined it carefully at the above-mentioned distance, but could not satisfy myself how the tail terminated. The creature possessed no fins or paddles as far as we could perceive, never having seen any part of its belly. I cannot say if it had legs. It is very possible that the creature was much broader and more massive than the dimensions above given, for the greater part of it was evidently under water, and we never caught a glimpse of any but the extreme upper parts. It appeared to me to progress by means of an undulatory motion of the tail in a vertical plane. The tail seemed to have an independent motion—that is to say, a quicker and a different one from the body. The head would rise slowly and the body become simultaneously lower, and *vice versa*. The undulations of the tail were brisker and very distinct, and I closely watched them through good glasses. I had for some moments the idea of running the creature down, but I shortly dismissed the intention on account of the danger of breaking the screw blades. The creature showed no sign of fear. I cannot even say if it was conscious of our presence. It finally dropped under our stern and passed over to the port side, somewhat slackening its speed. Some time afterward, however, it increased its pace, and when last seen was on our port beam, at about one and one-half to two miles distance. The creature formed a distinct wake, and seemed to exude an oily matter as he moved.

And secondly, I, the said James Anderson, do solemnly and sincerely declare as follows, namely: That the shape and color of as much as was distinguishable of the creature bore an almost exact resemblance to the upper part of a salamander; the stripes, however, were

rather more definite, yellow (the peculiar yellow of a salamander) alternating with deep black. There were eight to ten stripes on the back. I almost immediately said, "It is an enormous salamander;" and the more I examined it the more I was satisfied of the resemblance. The back was much larger, some eight or ten feet at times, than the head and tail. I was standing on the deck, and from my position I could not form any opinion of its mode of progression. It was apparently of a gelatinous (*i. e.* flabby) substance. Though keeping up with us, its movements seemed lethargic. I saw no eyes or fins, and am certain that the creature did not blow or spout in the manner of a whale. I should not for a moment compare it to a snake. The only creatures it could be compared with are the newt or frog tribe.

How the Pyramids were Built.

BY B. C. MORSEBEE.

The Egyptian Pyramids are justly considered as one of the Seven Wonders of the world, not only for the enduring manner with which they have survived the lapse of ages, but for the immense amount of labor expended on them. No enterprise of the present century approaches it in magnitude. Even the tunneling of the English Channel, now so seriously contemplated by Great Britain and France, is but a trifle in comparison.

The largest of the pyramids is four hundred and fifty feet in height, and seven hundred and twenty feet square at the base. It contains over two million five hundred thousand cubic yards of stone. The stones were all brought from a quarry some twelve or fifteen miles distant, and on the opposite side of the Nile. The first work was to build a great causeway or road on which to transport the stones from the quarry. Herodotus says that one hundred thousand men were employed for ten years on this part of the work.

After this preparatory work came the leveling of the rocky foundation, the cutting out of the subterranean chambers, and the transporting and elevating of the huge masses of stone. Gunpowder and other powerful explosives were unknown; consequently they were obliged to make use of an ingenious, though laborious, and often ineffective method of splitting the rock from its bed. Large holes were drilled into the rock, and wooden wedges were inserted; the holes were then filled with water, and, as the wedges became soaked, they swelled, and thus the rock was rent asunder.

The stones were shaped and hewed at the quarries, and then drawn by hand to the pyramids. This work occupied three hundred and sixty thousand men twenty years. How many men were employed upon the erection of the pyramids, is unknown.

Authorities differ in regard to the men employed; some affirm that they were captives taken from other nations with whom the Egyptians were at war, while others present just as strong arguments to prove that they were Egyptians, raised by draft, each levy serving a certain number of months, then others filling their places.

Number of Eggs in the Sturgeon.

Mr. Frank Buckland states that he has lately had the opportunity of examining the viscera of a sturgeon caught at Selby in Yorkshire. The following is an extract from his article on the subject: "The eggs filled a very large iron pail; they were surrounded by a white, milky substance, the exact nature of which I do not understand. Each egg is perfectly round, and about the size of ordinary partridge shot. The fish weighed one hundred and seventy-one pounds! The length was seven feet nine, girth five feet three. Mr. Searle, my secretary, and myself have carefully weighed the eggs, and the result is that there were forty-five pounds' weight of eggs. By boiling them and spreading them out on paper, we found that there were 1,380 eggs to the ounce; thus the total number of eggs contained in this one sturgeon amounted to the vast number of nine hundred and twenty-one thousand six hundred. When the reader is eating *caviare* he will have some idea of the number of young sturgeons that are thus destroyed at a single mouthful in the form of eggs. It is a most remarkable thing that a creature of such a gigantic size as a sturgeon should germinate originally from an egg no bigger than a partridge shot. It is a greater wonder than an oak from an acorn."

Canton.

BY CAPTAIN CARNES.

As there is no part of the world so densely populated as China, so there is no part of that empire as crowded with people as Canton. The streets are too narrow for any comfort in passing. There are no wheel carriages in use. The traveler moving through the streets is continually jostled by the chair-bearers of the mandarins or wealthy merchants. Recovering from such a shock, down comes a coolie with a burden and knocks him into the wall; and when he recovers from this thrust, a porter with a heavy load also shoves him in another direction. The English eye curiously looks over the live stock which is offered for sale in the narrow streets. Kittens mew, puppies yelp in bamboo cages, rats squeak viciously, ducks, cocks, and geese cackling, quacking, and crowing, all mingle in with the grunting of pigs. Besides these, fish, earth-worms, slugs, etc., are exhibited in tubs, pans, and buckets, each and all awaiting purchasers.

Close by a barber hangs his iron tweezers, to attract attention to his particular trade and calling. Just beyond is a traveling vender of cooked food. His fat pork and stews, swimming in oil, he serves out in small bowls, and haggles and bargains with his customers as they hungrily devour the mess. Close by this merchant is a vender of sweetsmeats. To the right is a book-seller, to the left a fortune-teller, and in front a doctor, advertising his wares. Under an umbrella, an old woman having feet only three inches long, is mending old clothes, and a passer-by, needing a button sewed on, gives her the job, and remunerates her with "cash." Not far distant a leprous beggar exhibits his sickening sores, and rattles two bamboo sticks to attract attention.

Imagine all these people and animals of which we have spoken vociferating, crying, yelling in concert, and the clatter and bustle of ever-changing throngs, and a slight conception of Canton may be conveyed to the reader's mind.

In the lowest quarters of the city there are many spirit-shops, which are frequented by sailors and ruffians of the most depraved sort, and robberies, bleeding noses, and free fights conspire to make an indescribable babel of devilish sounds.

Baffin's Bay by Moonlight.

The cold, silent moon looks down on a sea-like bay, the dark waters dotted by gigantic icebergs and an immense ice-pack, which lies like a barrier, menacing the daring mortal, who would penetrate to the secrets of the North.

No cities will ever dot its shores, no busy hum of cultivation, trade or factory.

The discoverer of this bay, one of the finest in the world, was William Baffin.

In 1612 he had made a voyage with Hall, one of the men who had been employed in the Danish expedition; and that voyage is remarkable as the first on record in which, by an observation of the heavenly bodies, a method was adopted for taking the longitude at sea. Baffin had also made a voyage to Greenland previous to his employment by the Company.

It was in 1615 that the command of the *Discovery* was given to Bylot, and Baffin appointed as his mate. Being far the better educated of the two, he seems to have really directed the course of the expedition; and some of his lunar observations on the occasion were made with so much accuracy, that, two centuries later, they called forth the praise of Captain Parry, who always held Baffin in great respect.

No very particular discovery is recorded as the result of this voyage, though it added, perhaps, a good deal to the general knowledge of those parts. But next year the same ship and officers were again sent out, and with such confident anticipation of success that they were ordered to bring back a Japanese on their return.

They sailed direct for Davis's Strait, up which they continued in a northerly direction until they came to Cape Dudley Digges, Whale Sound and Cary's Isles, in the very north of what has since been called Baffin's Bay, but which they supposed, as it now proves truly, to be open sea. Under that idea they were constantly trying to make their way westward, though fruitlessly, on account of the ice.

In July, however, this began to melt very fast, and they continued coasting along to the north until they came to an island to which they gave the name of Hackluyt, after Sir Richard Hackluyt, the first compiler of a volume of voyages; then on to Smith's Sound, at the extreme end of the bay; and next round by the western side to Jones's Sound, to both of which they gave the names.

At length they began to suspect that they were in a great bay, and not in the open sea at all, and their hopes became daily less and less. But in their southward course they passed another great inlet, Sir James Lancaster's Sound, little thinking that it led into an open strait, for it was barred by ice; nor was it until Parry's time that this barrier was passed, and the passage to the open ocean thus discovered. Coasting along as close to the shore as they could, they now pursued their way down the western side, until, arrived once again in Davis's Strait, they came to Cumberland's Island, where a consultation was held, in which it was decided, "that having come to an end of their discovery, they should cross to the coast of Greenland; to see if they could get some refreshments for their men."

Accordingly they anchored in Cockin Sound, so named by that Hall who had accompanied the Danish Admiral Lindenau, and thence, on the 1st of August, they steered their way home.

Little more is known of the after life of Baffin, except that he joined in the British attempt to expel the Portuguese from the Persian Gulf, and that at the siege of a small fort near Ormuz he was killed.

In a letter to one of the gentlemen who sent him out, Baffin speaks of the "worst being now known concerning the passage," and declares that "there is no passage or hope of a passage in the north of Davis's Strait;" but he dwells on the advantages of the discoveries which had been made thereabouts, and of the vast numbers of whales to be caught in those seas.

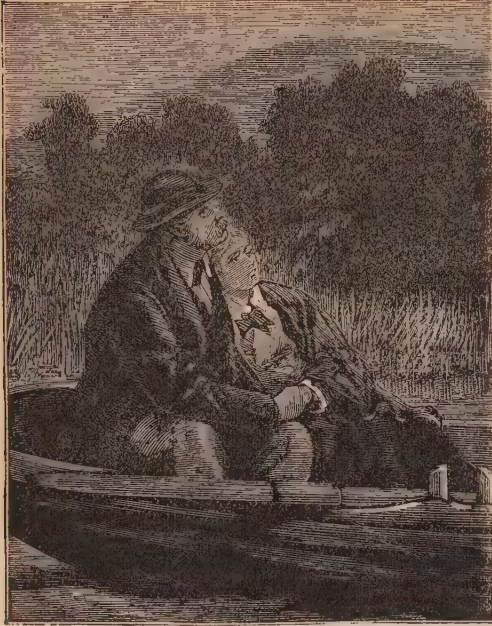
Arctic Night.

Dr. Hayes, in his remarks about the Arctic Winter, says:—

The darkness of the long night cannot be appreciated unless a person experiences it. It is a darkness that can be felt. Although no effect seemed to be produced on the physical faculties, it was a severe strain upon the mind. Repose is withdrawn. The desire for sleep gives place to an intense longing for light. The heart longs for something beside the stern darkness. The scene, by times, is grand beyond description, with mountain peaks standing up in cold, weird distinctness, and the stars seeming to pierce the clear sky. Even the moon's silvery light seems to send an icy chill of discomfort along the veins. No shadows or outlines appear to blend; everything stands out clearly and with abrupt angles. But by times this terrible tension of the nerves yields and is reconciled to the inevitable. The Esquimaux, with his sledge, is seen coursing under the full moon and the monotony is broken. And the Northern Lights are a grand feature of the scene. They dance, they flicker; their color and form vary, and they give a restless, moving, ghostly appearance to the gleaming icebergs which act as the frozen sentinels to the *beyond* where the daring explorer has not yet penetrated.

Flying Fish.

The so-called flight of the flying fish has been asserted by some naturalists to be only a long leap, the fish projecting itself from the water by a vigorous action of the tail, just as the salmon does in ascending falls, the large fins acting as a parachute, but never as wings, after the manner of birds. A few observers have declared that they really flew. These fishes leave the water at a very low angle of only five or six degrees, and during their flight change their direction so as to rise over crests and descend into the hollows of the waves. The motion of the fins is not constant, but intermittent, though kept up during the whole flight. The extent of the vibrations are quite small, and is indicated by a glimmering which corresponds with the arc through which they move. In some instances they flew to the distance of seventy-five or a hundred yards, barely touching the water from time to time, and at other times thirty or forty yards without touching at all.



STAR-GAZING.

BY CHARLES MORRIS.

Say, was it a fantasy olden,
A dream by the dreamers of eld,
That in those profundities golden
Our home of the future beheld,
As the magi our destinies spelled?

For what is the influence, dearest,
O'er-crossing time's shadowy bar,
That fills us with pleasure sincerest,
To gaze on yon luminous star,
Just as though on our homestead afar?

Sure it may be as radiancy stellar
Suffuses the awe-stricken soul,
These messengers shining can tell her,
Although not the glorious whole,
Yet some secrets beyond the bright goal.

Tell her some of the wonderful story,
The marvelous legend of grace;
How changing from glory to glory,
Till standing before God's own face,
Every soul, like each star, finds its place.

As we gaze on the shining one yonder
Our spirits are lost in amaze,
And we picture in love and in wonder
The calm of eternity's days,
When the life of the blest shall be praise.

For as star excels star in its brightness,
So, sweetest, thy exquisite face
Surpasses all others in whiteness,
And up in that passionless place
It shall still make me glad with its grace.

Yes, I know it. His mercy hath told us,
That when life's brief journey is past,
Earth's holiest bond still shall fold us
In ties than all other's more fast—
Those who loved shall love on till the last.

The union between England and Scotland took place on the 1st of May, 1707.

A Pacific Coast Meteor.

AN ÆROLITE FALLS INTO THE OCEAN.

The large number of meteors lately observed in the sky has attracted considerable attention, especially among scientific men, who are of the opinion that the earth is passing through a belt of these vagrant ultra-terrestrial brickbats whose orbit intersects that of the earth. There is some diversity of opinion regarding the

nature and origin of these stones, of which it is calculated that at least 5,000 fall upon the earth's surface yearly. The theory most widely accepted is that they are bodies of our planetary system that have come near enough to be acted upon by the earth's gravitation, and thus drawn out of their orbits. A great many ærolites have been found, and nearly every scientific institution in the world is possessed of one or more. The largest of which there is any authenticated record, was found on a Swedish Arctic expedition on the west coast of Greenland. It weighs twenty-five tons, and is now in the Royal Academy at Stockton. An ærolite of probably much greater size was seen lately by a correspondent in San Francisco, who was belated on the Ocean House road. At about 12:45 he noticed a peculiar light on the sand and sea around him, and, upon looking upward, discovered what appeared to be an immense ball of fire descending toward the earth. Its course was so rapid, that before he had fairly recovered from his astonishment the mass fell into the sea, apparently about half a mile from shore. A loud hissing noise, followed by a sharp explosion, accompanied the fall, and so frightened his horse that his whole attention for the next five minutes was directed toward the unruly animal. But he noticed that the ball of the meteor, as it is called, or, more properly, the combustion occasioned by the immense velocity with which the stone traveled through our atmosphere, remained visible for about two minutes. From the brilliancy and area of the fire surrounding the falling stone, and the splash occasioned by its sudden emersion, it is certain that the ærolite must have been of immense size, although, of course, no estimate could be made with any accuracy during the few seconds the ærolite was visible. It is to be regretted that the stone did not fall on the land, as in that case an unequalled opportunity to study meteoric formation would have been afforded to the scientists of San Francisco; but, as the water is comparatively shallow at half a mile from shore, it is barely possible that careful dredging might recover the stone. The resistance of the water would probably check the violence of the falling body sufficiently to prevent its embedding itself in the bottom to any great extent, and possibly the stone is simply resting on the bed of the ocean. It is a good opportunity for scientific investigation, and, if recovered, the ærolite would be a great acquisition to the collection of the Academy of Sciences.

The Banyan Tree, and the Ceiba Tree of Yucatan.

The Banyan tree is a grove within itself, and as they are continually increasing, many of them reach an astonishing size, and they seem exempted from decay. Every branch, from the main body throughout its own roots, are first only small, tender fibres, several yards from the ground, which grow thicker and thicker, and gradually descend until they reach the surface where, striking in, they grow to a large trunk, in turn sending out new branches, and so on almost illimitably. This tree is a peculiar favorite with the Hindoos; they consider its long duration, its extensive overshadowing beneficence, as emblematical of the Deity; therefore they plant it near their temples, and in their villages there is no structure for public worship without its banyan tree close by where are performed the morning and evening sacrifices.

Some of these trees have acquired historic fame. One, growing on the banks of the Nerbuddah, is capable of sheltering an army under its wonderful wide-spread shade. The larger trunks of this colossal tree are near 400, while the smaller ones exceed 8,000, each constantly throwing out fresh shoots to become ere long trunks themselves. History testifies that it can—that it has sheltered an army of 7,000 men. The banyan tree is more wonderful and infinitely superior to the temples and palaces of the vain, proud Moguls.

The Ceiba tree rises to the moderate height of sixty feet, but the trunk swells to marvelous dimensions, so that a thousand people could find shade and shelter 'neath its branches. The leaves fall in January, and then at the end of every branch clusters of glossy, purple-red large flowers make their appearance, affording a magnificent picture of tropical glory.

In Guiana, the savages take refuge in this tree during the season of floods. The young, mucilaginous leaves are eatable, as are also the seeds, upon which the natives subsist until the subsiding of the floods allows their descent to *terra firma*.

Seth Boyden, the Inventor.

BY M. J. CUMMINGS.

Away from warrior heroes and political great men, whose statues here and there adorn the public places about our populous cities, we turn to less conspicuous, but equally honorable names, coming up through the calmer ways and walks of life, and it is not unlike the sensation one feels when, after a grand, triumphant burst of martial music, the soft, sweet, soothing tones of the songsters in the forest at the twilight hour comes stealing into the listening ear.

True greatness and worth are found in every walk in life, and the aims and achievements of the masses are so intimately connected together, that happily each, in a measure, is dependent upon the other.

Seth Boyden was born at Foxboro, Mass., on the 17th of November, 1788. His early occupation was tilling the soil, and occasionally working in a smith's shop, repairing the agricultural implements for the farm. In 1803, at the age of fifteen, he repaired watches.

In 1809, when he was twenty-one, he was manufacturing wrought nails. In 1810 he made a machine that would facilitate his nail-making business. In 1813 he invented machines for the different purposes of cutting files, brads of different sizes, and for the cutting and heading of tacks.

In 1815 he came to Newark, N. J., with a machine of his own invention for splitting leather. His machines for cutting and heading tacks were a marvel of speed. In 1818 he was in the silver-plating business, and commenced experiments to produce a varnish for what is now known as patent leather. In 1819 he succeeded in making the varnish, but the novelty of the article at first debarred it from general use; but in 1822 he commenced the manufacturing of patent leather as an article of merchandise. For a time his sales were limited, as is usual with new inventions, but, ere long, the leather began to be appreciated, so that in less than half a century more than *four millions of dollars worth* is used in a year in the one city of Newark.

While Mr. Boyden was interested in the patent leather business, he experimented to convert cast iron into soft malleable iron. He succeeded in his experiment here also. During the period from 1826 to 1831, he gave considerable attention to astronomy and electricity and to natural laws. He made his own telescope and electrical machine. These were specimens of superior mechanical skill, and his telescope was of great power. His malleable iron was introduced into all manner of implements and machinery, and its ease of manipulation and cheapness made him in this respect, an invaluable public benefactor.

With some persons a princely fortune would have been the result of all these inventions; but with Mr. Boyden gain was not the impelling power. His mind, restless with Divine stimulus, would not allow of his being an idle spectator of the march of progression, and while the public mind was excited in building railways and engines, he furnished a shop with proper machinery and commenced the manufacturing of steam engines and other machinery. He made great and wonderful improvements in steam engines, even in those respects where unprincipled persons saw and seized upon the opportunity to make fortunes, using in *their* patents almost wholly Mr. Boyden's suggestions and arrangements.

In 1840 he made a speculum for a daguerrean machine, taking the first daguerrian likeness in this country. He advanced the idea, afterwards proven correct, that in case of a thunder shower many bolts strike *up* from the earth as well as down towards it.

He also invented a furnace for smelting zinc. Other useful inventions owe their parentage to this man's mastermind; but with that strange fate that often, in fact almost always follows genius, those coming after reaped what he had sown. His was a gentle, quiet, lovable nature. He was never wealthy, but none need pity him; his wants were simple; he never was in debt, and was loved by those who knew him, and revered by persons of culture and mind. Blessed of God with extraordinary talents, yet he was humble and content, and what more, vain man, would you ask or have? It was enough. Mr. Boyden interested himself in agriculture. He produced and exhibited some of the most wonderful strawberries of which we have record. In

the wonderful production of these berries he left nothing to chance or insects, but with his own hand shook the fertilizing pollen into the strawberry flower and thus perfected the species. His success was an astounding revelation in horticulture.

He was fond of pets. In his last sickness some one proposed shooting a bird to tempt his palate. "What bird?" he inquired. "A robin; they have come." How promptly he forbade it. He made a fish-pond and stocked it, simply to make pets of the fish. They would eat from his hand.

If he exhibited a favorite animal at the State Fair, he made his couch upon the hay in the stable to see that no harm came to his pet. Seeming to understand chemistry in all its branches, he knew what sort of fertilizers to apply to the different soils of his strawberry beds to feed the enormous growth which he sometimes obtained. It is on record that his first exhibit of his new variety of this most delicious berry silenced all competitors. The plant had a hundred berries in different stages of ripeness, and the green leaves were like a miniature cabbage. While experimenting to procure new varieties, after he had shaken the pollen upon the flowers, he protected them from invading insects by gauze coverings.

But Seth Boyden was so simple, so kind and retiring in his habits that justice was never done him; yet one whose inventions have been so useful to mankind and whose life has been so blameless, should be held up as a pattern worthy of imitation.

The relative wealth and income of the three most opulent men living—the Duke of Westminster, Rothschild, and Mr. Mackey the Bonanza King—have been reduced to figures, as follows:

	Duke of Westminster,	Rothschild.	Mackey.
Capital	\$16,000,000 00	\$40,000,000	\$55,000,000
Per year	800,000 00	2,000,000	2,750,000
Per month	60,000 00	170,000	200,000
Per day	2,000 00	5,000	7,000
Per hour	90 00	200	300
Per minute	1 10	4	5

The Frost Flowers of Russia.

A correspondent describes an extraordinary frost-flower of Russia, which has been produced, it is said, in Boston in a temperature of artificial cold. This wonderful plant, or rather flower, is found only on the northern boundaries of Siberia, where the snow is eternal. It was discovered in 1863 by Count Swinokoff, the eminent Russian botanist, who was ennobled by the Czar for his discovery. Bursting from the frozen snow on the first day of the year, it grows to the height of three feet, and flowers on the third day, remains in flower twenty-four hours, and then dissolves itself into its original element—stem, leaves and flowers being of the finest snow.

The stalk is one inch in diameter; the leaves—three in number—in the broadest part are one inch and a half in width, and are covered with infinitesimal cones of snow; they grow only on one side of the stalk, to the north, curving gracefully in the same direction. The flower, when fully expanded, is in shape a perfect star; the petals are three inches in length, half an inch wide in the broadest parts, and tapering sharply to the point. These are also interlaced one with the other in a beautiful manner, forming the most delicate basket of frost work, the most wonderful. The anthers are five in number, and on the third day after the birth of the flower of snow are to be seen on the extremities thereof, trembling and glittering like diamonds, the seeds of this wonderful flower, about as large as a pin's head.

The old botanist says, when he first beheld the flower, "I was dumb with astonishment; filled with wonderment, which gave way to joy the most ecstatic on beholding this wonderful phenomenon of snow—to see this flower springing from the snowy desert, born of its own composite atoms. I touched the stem of one lightly, but it fell at my touch, and a morsel of snow only remained in my hand." Gathering some flowers in snow in order to preserve the little diamond-like seeds, he hied to St. Petersburg with, to him, the greatest prize of his life-time. All through the year they were kept in snow, and on the first day of the year following, the Court of St. Petersburg were delighted with the bursting forth of the wonderful frost-flower.

CELEBRATED TUNNELS, OR GREAT WORKS UNDERGROUND.

Without taking faith and perseverance into consideration, man knows not what wonders he may perform. Many of the greatest works he has wrought have required years of persistent toil, and unswerving endurance, with an eye fixed steadily on the object the completion will attain, and unyielding labor and patience have in nearly every case finally crowned their efforts with the golden diadem of complete success.

One great reason why so many fail in what they undertake to perform is, that they do not continue to the end. They probably have a work in hand which they intend to accomplish, but hard times come on, and they look to the present, and their well laid out undertaking drags heavily on, and at times ceases altogether. They fly from one thing to another, because for the moment the inducements seem better; but they, too, at length fail to bring the rich reward they seemed to hold out, and they leave the fickle-minded experimenter no better than when he commenced.

Young man, beware how you scatter your forces. With calm study and reflection map out the course you really desire to pursue through life; concentrate your mind firmly upon it, and let come what may keep straight ahead, through sunshine and the dark storms of adversity, always paying as you go, and though your progress be slow have nothing to fear as long as it tends upward, for patience and perseverance will in the end accomplish what you desire, and bring you happiness and independence.

The mighty ruins of Thebes and Babylon, and the pyramids of Egypt, attest the perseverance of the ancient world; and the stupendous churches, cathedrals and railroads, appear as enduring monuments of the perseverance of to-day. In such works as these all the ingenuity and inventive skill of man will avail him nothing unless he presses steadily onward until the end is reached. He must know he is right, and then without regard to what the outward world around him may say he must toil on, and ever be patient and willing to labor and to wait.

It is said if we have faith, like a grain of mustard seed, we may remove mountains, and who that has viewed the great works along some of our railway lines can doubt the fact. Huge embankments are thrown across deep valleys, hills leveled down for the road-bed, and though the entire mass of the larger mountains be not wholly removed, it is oftentimes pierced through and through by a long dark underground passage, along which the train thunders with heavy hollow reverberations, impressing the mind of the traveler or tourist, so suddenly buried from the golden sunshine of day to the depths of the cold rock-cased dungeon, with feelings of strange emotion, altogether different from those produced by viewing almost any of the other wonderful works of man. We now propose to call the attention of the indulgent reader to a brief description of a few of the more noted works of this class.

At the time of its construction, the Thames tunnel under the Thames River, London, was undoubtedly one of the greatest works of its kind ever attempted. The project was set on foot in 1802, and thousands of dollars and years of time were spent in digging through quicksands and running earth and gravel, all to no purpose. Early in 1824 a permanent company was incorporated by Act of Parliament, and in March, 1825, the work was commenced under the very able superintendence of Mr. Brunel. A strong shaft was constructed 50 feet in diameter and 42 in height, and as the earth was excavated and thrown out from the inside, by the help of a 30-horse power steam engine, the entire structure, weighing no less than 1,200 tons, sank gradually to the depth of 40 feet. A shield was now erected, composed of 36 compartments and three stories in height, that the whole space might be filled by a busy throng of industrious workmen, and about the 1st of January, 1826, active work in the great tunnel commenced.

As the work progressed the shield was moved forward, and an army of masons and bricklayers followed, shaping the dark passage, and forming a beautiful and substantial double archway 38 feet in width and 22 feet 6 inches in height. They had proceeded but a short distance when they entered soft earth and treacherous quicksand, and for thirty-two days their progress was extremely slow. On the 14th of March they came to more solid ground, and the excavation was pushed ahead more rapidly. By the 14th of September, 260 feet had been completed. At times the workmen were for the moment startled by hearing the river deposited suddenly falling over the head of the shield, accompanied by slight bursts of sand and water; but, as everything had been prepared for such emergencies, they soon learned to look upon them with no more alarm than we do the sudden settling of the snow crust on a winter's evening.

At the end of the first year they had penetrated 350 feet. It now became necessary to work with the utmost precision, as the ground was found to consist of masses of loose round pebbles and streaks of fluid sand. On the 22d of April a diving-bell was procured, and an examination made of the bottom of the river. Several depressions were found, and means at once taken to make them secure. During one of these trips under water a shovel and hammer were left upon the bottom, which

could not be found upon a second visit. On the 12th of May they were dug out by the workmen engaged in excavating the tunnel below, having worked their way through at least 18 feet of ground.

On the 18th of May a burst of water came in from overhead, like a broad transparent curtain between the brickwork and shield. The men rushed to the spot and put forth every energy to oppose it, but their efforts were made in vain. The stream increased, and soon broke through in great force and filled the tunnel. The diving bell was again entered and the work examined. It was found to be perfectly sound, and work was at once commenced to fill up the great chasm, over 38 feet in depth. Three thousand tons of clay in bags armed with hazel rods, and a large quantity of earth and stone were used, and at length the river resumed its original course. The tunnel was again entered on the 21st of June, when it was found in some places nearly full of earth and detritus washed in by the river, which it required nearly two months to remove. Heavy pieces of casting had been wrenched from the shield and driven into the ground as though by the power of some monster pile driver. The unequal settling of the new made ground filling the chasm overhead, caused the solid frames to rupture and splinter with a crash like that of artillery. But the men stood undaunted, repaired the damage and advanced the work.

On the 12th of January, 1833, the superintendent, who had watched every movement with a vigilant eye, warned the men of danger. With the exception of Mr. Brunel and a few others who remained till the last moment to do what they could to avert the threatening catastrophe, the workmen fled from the tunnel. The danger now became imminent. The ground seemed to tremble and vibrate, and then to swell and roll inward. Mr. Brunel saw that the last moment had come. Directing the men to save themselves, he stepped back towards the shaft. At that moment the ground burst in with a tremendous crash, and every light was instantly extinguished. Mr. Brunel rushed for the shaft, the flood of waters rolling in upon him, and reaching the top before him. He, however, escaped, though several others lost their lives.

Four thousand tons of earth and clay were required to fill this new chasm, and a long time elapsed before the tunnel could again be entered. On re-entering it, however, the work was found to be perfectly sound, and clearing out the debris, its advancement was again resumed. The funds of the company ran low, and for weary years the work dragged slowly, but continued perseverance finally carried the stupendous undertaking through to completion. It was a grand success, and the Thames tunnel connecting the busy worlds of London was stamped among the greatest engineering achievements of the nineteenth century.

One of the first tunnels constructed for the purpose of facilitating inland navigation was constructed by M. Regnet, an eminent French engineer, in the reign of Louis the Fourteenth, carrying the Languedoc canal through an insuperable mountain barrier. The first tunnel excavated in England was the work of Mr. Brindley. It was executed for the Duke of Bridgewater's canal, near Manchester, about 180 years ago. Some years later he excavated a grand tunnel through Harecastle Hill, in Staffordshire, for the purpose of uniting the Trent with the Mersey. This great work was 8,640 feet in length, and in places 240 feet underground.

The great Sapperton tunnel, connecting the waters of the Thames and Severn, is another instance of English enterprise. It is two miles and three-quarters in length, most of the distance being through the solid rock. The Great Drift, or Newcastle tunnel, is one of the most stupendous undertakings of the kind ever executed in England. It was completed in 1797.

The celebrated Liverpool tunnel, at the commencement of the railway, is 6,750 feet in length, 22 feet wide, and 16 feet high. A double track extends throughout, and a row of brilliant gaslights hang from the center of the arched roof overhead at regular distances of 75 feet from each other. "The effect," says Mr. Stephenson, the able engineer who executed this splendid work, "is strikingly beautiful, for the rays of light from each lamp throw a distant luminous arch on the roof, and the series diminishing according to the laws of perspective, gives the appearance of a number of distinct arches, instead of one continued vault.

The noted tunnel on the Thames and Medway Canal, between Gravesend and Rochester, England, is well worthy of mention. It is two miles and a quarter in length, and excavated so straight and true that the light from one extremity can be seen from near the other. At first the far distant opening appears little larger than a finger ring, and as the traveler approaches the middle it seems as though it would be impossible for him to crawl out at either extremity. Says an English writer, "the sensations produced on the mind of a stranger in exploring this vast and dusky passage, are powerful and impressive, and increase with each succeeding step, as the cheerful light of day is left behind; the reflection of the chalk upon the clear surface of the water, more distinctly visible as you approach either end, apparently doubling the magnitude, and the entire absence of every sound but that of the slow and measured footsteps of the quadrupeds employed in towing the craft, stealing on the ear at a distance, and becoming gradually louder and louder as it reverberates through the tunnel, combine to produce an emotion of sublimity which enhances not a little the interest with which the work will be contemplated by the intelligent passenger." The width of the excavation is 30

feet, 24 being occupied by the canal, and the height 15 feet above the towing-path. It was more than 20 years in building, and cost nearly a million of dollars.

The Primrose Hill Tunnel, on the line of the great North-Western Railway, England, is decidedly one of the most elegantly finished works of the kind ever attempted. The railroad itself is a monument of engineering skill, in usefulness, magnitude and splendor, exceeding the wonderful pyramids of Egypt, and requiring a removal of more than 15,000,000 cubic feet of earth, and the labor of 20,000 men, with all the modern appliances of machinery, for nearly five years. The entire cost could not have been less than \$90,000,000. The tunnel is 3,750 feet in length, 25 feet high, and 23 feet wide. It is ventilated by five shafts, each eight feet in diameter. It was executed by Mr. Stephenson, England's great engineer, at a cost of \$2,000,000.

American engineering skill is exemplified by hundreds of tunnels and other vast works to be met with in every direction where her immense railway lines extend. The celebrated Baltimore and Ohio Railway is particularly conspicuous for its numerous tunnels or underground passages, among which may be mentioned the Doe Gully Tunnel, the Paw Paw Ridge Tunnel, excavated through a soft slate rock and curved horizontally with a radius of 750 feet; the Everett Tunnel; the McGuire Tunnel, 500 feet in length; the Rodemer Tunnel, 400 feet long, secured by substantial arches of brick and stone; and the well-known Kingwood Tunnel, 4,100 feet long. The latter is the work of Benjamin H. Latrobe; was nearly three years in progress of excavation, and a year and a half more in being shielded with brick and iron, and cost a million of dollars. At the time it was the longest finished tunnel in America. Only two miles from this remarkable work is Murray's Tunnel, 250 feet long, resting on a bed of coal six feet in thickness. The Welling Tunnel, 28 miles from Wheeling, is 1,250 feet long, cut through slate rock and beautifully arched.

The famous Hoosic Tunnel in Massachusetts, which required so many years to excavate, is the grandest work of its kind east of the Atlantic, and may be classed with the most gigantic works of the Old World. This and the celebrated Bergen Tunnel are perhaps too well known to require description.

At the head of all the vast works of this class the far-famed Mount Cenis Tunnel stands alone and without a rival, the wonder of the modern world. It pierces the rugged Alps, and opens uninterrupted railway communication from France into Italy. The excavation was commenced in 1859, and for years advanced through the hardest of flinty rock, until the workmen stood under the heart of the Alpine range, in the narrow rock-cased passage, with nearly 8,000 feet, or a mile and a half, of solid rock above their heads. No shafts could be sunk through this immense distance for different gangs of workmen to work from, and the whole had to be excavated from the two extremities. For some time the enterprise progressed extremely slow, but in 1861 one of the leading engineers invented a wonderful machine, termed an Affusto, containing nine perforators or drills, striking altogether 1,800 times per minute, and worked by compressed air brought up in a pipe from miles away. The drilling and blasting operation was now pushed forward with more rapidity, and at length, on Christmas afternoon, 1870, greetings and hurrahs were exchanged by the two parties through the dividing wall of rock. When completed, its entire length was 40,731 feet, or about seven and seven-tenth miles. The tunnel and railway, 42 miles in all, traversing a region of almost unparalleled wild Alpine scenery, cost, according to our prices and currency, nearly one hundred millions of dollars. Probably, according to its length, it is the costliest railway in the world.

So much for the modern works of man in this course. And now a project is said to be on foot for tunneling under the English Channel or Strait of Dover, 21 miles across, and thus connecting England with the continent of Europe. This, of course, would eclipse everything ever attempted in this line. It is a giant undertaking, and the mind of man is hardly ripe for the work; but for all that, the thing is, probably, possible; and the genius and enterprise of the generation just coming upon the stage of action will, without doubt, accomplish the mighty work.

The Minotaur.

In ancient mythology the Minotaur was said to be half man and half bull. The story is, that Minos, King of Crete, refused to sacrifice to Neptune a beautiful white bull which was demanded by the god. The angry god showed his displeasure by causing Pasipha, the wife of Minos, to defile herself with this bull through the aid of Daedalus, and give birth to the monster. Minos confined the Minotaur in the famous labyrinth. Here the monster devoured the seven young men and the seven maidens annually required from the Athenians by Minos.

The Chimera was said to be composed of dragon, goat and lion united; the middle of the body was that of a goat, the hinder parts those of a dragon, and the foreparts those of a lion; and it had the heads of all three, and was continually vomiting forth flames. This monster lived in Lycia, in the reign of Jobater, king of that country. This king wishing to punish Bellerophon in

order to gratify his son-in-law, Prætus, sends him against the Chimeras. But Bellerophon, by the aid of Minerva, and the winged horse Pegasus, instead of perishing himself, destroyed the monster.

The Centaurs were said to be half man and half horse. Some make them the offspring of Ixion and the cloud; others refer their origin to the bestiality of Centaurus, the son of Apollo. They were said to dwell in Thessaly.

The principal incidents related of them are their rude attempts upon the women at the marriage of Pirithous and Hippodamia, and the consequent battle with the Lapithæ, who drove them into Arcadia. Here, they were afterwards chiefly destroyed by Hercules.

Some have imagined this fable to allude to the draining of the low parts of Thessaly, as the horse is in general symbolical of water.

Geryon was a monster said to be the offspring of Chrysaor and Callishoe, and to have three bodies and three heads. His residence was in the island of Gadis, where his numerous flocks were kept by the herdsman Eurythion, and guarded by a two-headed dog called Orthos.

The destruction of this monster formed one of the twelve labors of Hercules.

The Hydra was a monstrous serpent in the lake Lema, with numerous heads. Nine, according to common account. When one of these heads was removed, another or two others immediately grew in its place, unless the blood of the wound was stopped by fire.

The destruction of this Hydra was another labor assigned to Hercules, which he accomplished by the aid of Iolus, who applied lighted brands or a heated iron as each head was removed. The arrows of Hercules being dipped in the Hydra's blood, caused incurable wounds.

Pegasus was not so much a monster as a prodigy, being a winged horse, said to have sprung from the blood which fell on the ground when Perseus cut off the head of Medusa. He fixed his residence on Mount Helicon, where he opened the fountain called Hippocrene. He was a favorite of the muses, and is called the "muses' horse." The horse having come into the possession of Bellerophon, enabled him to overcome the Chimaera. Afterwards Pegasus, under an impulse from Jupiter, threw off Bellerophon to wander on the earth, and him self ascended to a place among the stars.

Honduras

Honduras is one of the discoveries of Columbus. It has a low coast, studded with numerous islands. From the coast the land rises into bold heights and is diversified with rivers and lagoons, rapids and waterfalls, amid the most vigorous verdure and the most gigantic forests. This excess of vegetable life but typifies the animal kingdom there. The jaguar, capybara, armadillo, large weasel, opossum, deer, wild-turkeys, pheasants, pigeons and plovers abound, and insects swarm in myriads. Sea-fowl hover over the waters and the coast. In the deep, fish are abundant, turtles are animal or reptile aldermen, and alligators roam whithersoever they will.

The fruits are oranges, shaddocks, limes, mangoes, melons, pine-apples, watermelons, arocata pears, coconuts, and many others. The soil is unsurpassed in the world, the climate tropical, and it might yield the most abundant crops, but the people choose, instead of cultivating the soil, to cut and export mahogany and logwood, and import much of their food.

Mahogany is best grown on elevated situations, where it is conspicuous from its yellow foliage. Its boughs afford the finest wood, but size is a matter of prime importance. The log-wood is found at the water's edge, its spreading roots producing the most valuable dye-stuff. Pine containing an immense amount of turpentine, is also found here. The other exports, besides these woods, are trifling, but they include rosewood, hides, tortoise shells, fustic, cochineal, indigo, sarsaparilla and cocoanuts—all of the latter are not produced in this province, but are procured by traffic with Yucatan.

Since the war of the rebellion a few Americans have settled here and cultivate rice and tobacco. Cotton, owing to worms and too heavy rain falls, cannot be successfully cultivated. But the great drawback to the prosperity of this country is the climate; the natives are too indolent to labor, and the white race cannot endure the enervating heat.

Discovery of a Lost Plant.

There have been a number of authenticated instances where the vitality of seeds has been preserved for a long period of years. There has lately come to light a fresh case, which will rank among the most curious on record. The mines of Laurium, in Greece, which were worked about 1,600 years ago, are in a great measure composed of scoria, or the refuse of ancient mines, which still yields a high per centage of silver. In clearing away a mass of this refuse a quantity of seeds were discovered which must have been buried for at least fifteen centuries. Restored to conditions favorable for germination, to the heat of the sun and contact with the air, the seeds gave signs of life, burst their buds, sent down roots into the earth, and threw up stems into the light. When the last had budded and blossomed, lo! a lost species of the genus *Glaucium* (horned poppy) of the order *Papaveraceae* was revealed. Pliny and Dioscorides frequently describe the flower in their writings with great particularity, as its golden corolla is very beautiful; but it has hitherto been unknown to modern science. Now, the plant which had disappeared from the face of the globe for 1,500 years or more, is resuscitated by a strange and happy accident.

TAKE time, boys; don't be in a hurry. Are you learning a trade? Determine to be a good workman. Never slight your work. Deserve success, and it will come. As you prove worthy, so will your success be.

An Esquimaux Fish Trap.

BY B. C. MORSEBEE.

The Esquimaux Indians, although they do not rank high as mechanicians, are the inventors of many very curious implements for hunting and fishing, which show considerable ingenuity as well as a thorough knowledge of the habits of the animals they are intended to entrap. As a rule it is evident that they have carefully studied how to make all their implements as simple and as effective as possible—a custom which our inventors would do well to follow.

Along the banks of the Kwichpak and Yukon Rivers, in the territory of Alaska, fish forms the principle article of food, as well as of commerce, and the chief employment of the natives is catching them and preparing them for transportation to market. Many very ingenious contrivances are used to ensnare the fishes; but the most curious, if, indeed, not the most ingenious, is called in their language *talpiakniat*, or, literally, "fish-trap." It is called by the Russians, *morda*, and by that name is generally known along the Alaska coast. The ingenuity of a civilized nation would be able to devise a simpler and an easier method of making such traps, but the principle would be difficult to improve.

A steep bank, where the current is slow, and the water still and deep, is the most favorable locality for a trap of this kind, and the fisherman considers himself as fortunate if he can find such a place, of which possession has not already been taken by some one more fortunate in first discovering it. Having found a suitable location, the next step is to make the trap. For this purpose he selects several spruce trees from which he can cut a stick from six to twelve feet in length, according to the size of his trap. For greater elasticity the trees should not be more than six or eight inches in diameter, and it is necessary that they be straight grained, and perfectly free from knots and all other imperfections.

Such a stick being procured, he first splits it, then divides and sub-divides each piece, until he has reduced them all to the size of a pipe-stem. He then weaves them together so as to form a net-work, which he secures in the river at right angles to the shore and perpendicular to the surface of the water. Another similar net is placed at the end of and at right angles to the first. At each end of this cross-piece, and pointing towards the shore, is another small net, in which there is a small opening leading into an enclosure made of the same material, and of which there is no other opening. A fish swimming along by the side of the bank meets the first net; turning, he follows it along until he meets the cross-piece; then turning again, he meets the end-piece. Becoming confused, he dashes through the opening into the inclosure and is a prisoner, as elastic sticks are placed around the entrance at such an angle that he cannot pass out by the same way that he came in: and there are no other means of egress.

The principal kinds of fish in these waters are, the salmon and salmon trout, both of which are sold by the Esquimaux at the rate of six musket balls per ukali; an ukali is about sixteen pounds. The white traders sell them on an average of five cents a pound. In such numbers do these fish abound in Alaska, that, in 1870, no less than two million eight hundred thousand pounds were exported. An active trade has been kept up for years, and the supply, so far from becoming exhausted, is on the increase.

A very curious fish known as "kennel-fish" (doubtless, a corruption of "candle-fish"), is found in some of the ponds in this region. It is seldom used as an article of food, as its flavor is very strong and disagreeable, and even the dogs refuse to touch it unless compelled by hunger to do so. It is a small fish, not more than eight or nine inches in length, and its only peculiarity is the excessive amount of oily substance in its body, which is so great that it is used as a torch or candle with no other preparation than a wick being drawn through its body from head to tail, and the skin removed.

Books.

Deprived of books, the world would be without one of its most substantial joys. How much more hollow life would be without them! They are one of the few profitable pursuits that afford unalloyed pleasure. I confess that I am not impervious to the temptations of more shallow pastimes, and suffer them to engage much of my time to the prejudice of my literary progress; but with regret do I, returning from their unfruitful allurements, look back upon the wasted opportunity, and with increased and grateful ardor relapse into the refreshing and mild, but none the less sound entertainment of letters.

With what pleasure we review the hours spent in this manner? No bitterness is there to sting with regret; these reflections come not to chastise. In books the mind had scope. It was not confined to an empty, mechanical formula; it had something, as it were, metaphysically substantial with which to exercise itself; something which developed its powers; something congenial, that did not mockingly elude its longing clutches; something that pierced the surrounding mists, and opened its aspiring perceptions to greater objects; something that aided it to mount above the common, earth-bounded view to a broader vista; something that fed, but never sated, its yearning.

Those hours we recount as steps by which we gained our present elevation of improvement, whose exact altitude being hid in pleasing uncertainty, the mind, curious concerning her treasured possessions, recapitulates them with ever-renewed joy.

What more pleasant picture—in the long winter evenings, when everything is dreary without doors, the weather bleak, raw and uncomfortable, the rain, "the cold November rain," pattering from leaden-gray skies, when the cows low, and the blattant calves bleat for very dreariness—than a snug figure ensconced in an easy chair, choice books in hand, sitting before a roaring, blazing, sputtering, singing wood-fire, that reddens all the room with its rosy laughter, and chases the shadows along the walls and back into their holes—what more comfortably contented picture than this figure, amid these circumstances, while the mind is engrossed with the pleasing surprises inspired by genius' deep, wondrous emanations.

But books have charms independent of circumstances. The mental, as well as the physical being requires sustenance. Nature is the great caterer to both. On her more gross productions the physical being feeds. On her more refined and metaphysical, the mental. Man in a wild, uncultivated state consumes his food, both mental and physical, in a raw condition. Civilized man artificially prepares it in its most serviceable and delectable forms. Thus, as his dishes are dressed to his taste from nature's raw fruits, so are books the dishes dressed to his intellectual taste from her crude mental fare. As such, therefore, we ought to take pleasure in them. So the learned, and those who can appreciate their beauties, do. But they have first to be educated to their comprehension; for as savages cannot, at first, like civilized fare, neither can we, at the outset, like our mental fare in its advanced state of improvement, but have to be gradually educated to it.

J. H. MOORE.

Peruvian Sepulchres.

At the foot of a high mountain which rises from the shore of a small bay called Chacota, to the south of Arica, are a great number of ancient sepulchres. These are covered over like the adjacent soil with a species of earth very much impregnated with salt; and to this may be doubtless attributed the preservation of this memento of the unhappy aborigines of the country. In 1700, several of these sepulchres were examined by Don Felipe Bauza, a captain in the Spanish navy, who found the greater part of the bodies in an entire condition, but withered to a skeleton, covered with a dark brown skin, and the hair of some quite of a red color. The niches in which they were deposited were generally cut out of the stone from four to five feet in length, some being rudely carved and having at the bottom a mat made of rushes. The bodies were placed on this mat, the same attitude being generally observed in all. They were seated cross-legged, with the hands placed over the breast, and so contracted as to occupy the least possible space. Others were seated with their knees bent up near the mouth, the hands likewise being crossed over the breast, and all placed with their faces toward the west. The body of a young man was taken out which had been wrapped in cloth, and his features were still distinct; that of a woman was also examined, whose hair was in perfect preservation. It was half a yard in length and divided into two parts. Some of the bodies were wrapped in a sort of coarse woolen cloth from the head to the feet, the mouth being tied up; others were wrapped in coarse nets made of "pita," and all of them had a small bag hung around the neck, which was found at the time to contain nothing but earth and dust, whatever it might originally have been. Various little pots made of clay were found around the bodies, and some larger ones of curious form. In addition to these, some fragments, apparently of plates, an ear of corn, some pita, and other trifling articles were found; also some small pieces of copper cut in the shape of coins. In Ylo, and other parts of this coast, the sepulchres are common.

Benares, India.

The Benares of the present time is a stronghold of idolatry. It is situated on the Ganges and is immensely populated. There are thousands of houses of brick and stone, and thousands also built of mud. Many of these buildings are six stories high. This is the Hindoo Athens, and contains many Sanscrit colleges and hundreds of heathen temples.

Benares is held in such high esteem by the Hindoos that pilgrims go thousands of miles for the sake of dipping up water from the sacred Ganges at this place. In this city is the temple of Gunesch. The idol Gunesch is regarded as the god of wisdom. It is worshiped by most of the shopmen of Bengal. They keep a small image of this god in their places of business. It is a sort of mongrel image, representing a boy's body with an elephant's head. Formerly, children were slain in this temple as sacrifices to the god. Gongs were beaten to drown the dying cries of the helpless victims. However, Christianity has penetrated here with its blessed light, and these human sacrifices are no longer permitted.

CAPTAIN CARNES.

The Sand Darter.

In the sandy bottoms of clear streams in Ohio and Indiana, there is common a little fish (*Pleurolepis pellucidus*, Agassiz), with a slim, cylindrical body, measuring two or three inches in length. The diminutive creature is of a pinkish hue, with a line of steel-blue spots along the sides and back, but it has no more consistency or opacity than a mold of jelly. Not much of it is known among naturalists, but Jordan and Copeland have lately contributed some observations upon its habits. A specimen was placed in an aquarium, to which it easily accommodated itself; but, in the course of a few days it was missing. After a careful search in the shingle at the bottom, the upper edge of its caudal fin and its little black eyes were discovered peeping out of the sand. *Pleurolepis* was buried! Was he dead? Slowly one eye was closed in a darter's inimitable way, for they can outwink all animals in creation except owls; and

the touch of a finger on its tail showed that it had lost none of its activity.

Many days elapsed before the little burrower was observed in the act of entering the sand, but finally the process was watched by a vigilant spectator. The tiny darter pressed its horny nose against the bottom, standing meanwhile almost on its head, and, with a rapid motion of its tail from side to side, completely buried itself within five seconds. The sand was stirred violently by the action; but as it had nearly settled in the course of half a minute, the darter thrust its nose out, and, quietly drawing it back, left the twinkling eyes and narrow forehead alone visible.

The study of scores of different individuals has demonstrated that the *Pleurolepis* remain buried while the water in the aquarium is pure and cool; but when it needs changing, they leave their burrow and lie on the bottom panting violently. The motive which the darter has for burrowing is not yet explained. It seems to be wholly unpremeditated, testify the observers. A number of them in confinement lie helplessly on the bottom, motionless and slowly breathing, when one suddenly starts and buries its head and neck in the now whirling sand, by a motion as quick as thought; a headless tail beats frantically about; and when the quicksand lies smoothly on the bottom again, the little eyes are looking at you like two glistening beads, as if to witness your applause at so clever a trick.

A *Boleosoma* (*B. brevipingne*, Cope), in the same aquarium with the sand-darters, has been noticed burrowing in the sand quite as persistently and in the same manner as its companions. The habit is possibly catching, as it has not before been observed in an individual of this species. The food of the *Pleurolepis* is minute, if not microscopic.

No Night.

BY CAPTAIN CARNES.

Nothing strikes a stranger more forcibly, if he visits Sweden at the season of the year when the days are the longest, than the absence of night. A traveler relates these interesting facts:

While he tarried in Stockholm he returned at midnight from visiting some friends, and it was as light as in England half an hour before sundown. You could see distinctly, but all was quiet in the streets as if the inhabitants were dead or gone away. The sun in June goes down in Stockholm a little before ten o'clock. There is a great illumination all night as the sun passes around the earth towards the North Pole, and the refraction of its rays is such that one can see to read at midnight without artificial light. This writer says that the first time he awoke in Stockholm he was surprised to see the sun shining into his room. He looked at his watch and found that it was but three o'clock. The next time that he awoke it was five, but there were no persons in the streets, for the Swedish citizen is indolent.

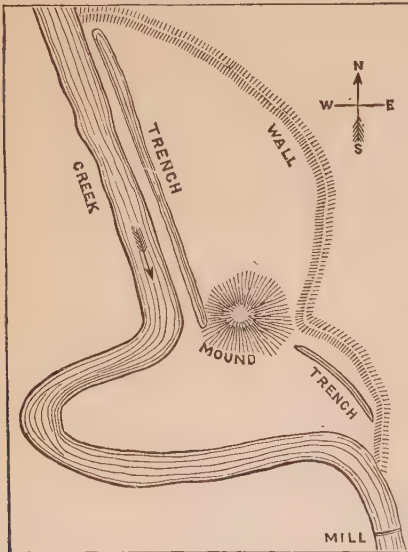
There is a mountain at the head of the Gulf of Bothnia, where, on the 21st of June, the sun does not appear to go down at all. A steamer goes up from Stockholm purposely to carry up those people who wish to view this phenomenon. It occurs only one night. The sun reaches the horizon, you can see the whole disc, and in five minutes more it begins to rise. At the North Cape, latitude seventy-two degrees, the sun does not go down for several weeks. In June it is twenty-five degrees above the horizon at midnight. On the other hand, in the winter, the sun is not seen for weeks; then it appears for ten, fifteen or twenty minutes, after which it descends, and, finally, up it comes and does not set at all, but makes a circle around the heavens. Birds and animals, however, take their accustomed rest at the usual hour whether the sun goes down or not.

THE extent to which the ancients enjoyed the perfume of roses seems hardly credible to us. They covered their banquet tables with them, and by some mechanical contrivance, roses were showered upon the guests as they sat at their meals. They reclined on cushions stuffed with rose leaves, or on couches composed entirely of roses. The floor too was strewn with roses. Cleopatra, at an enormous expense, caused roses, two cubits deep, to be laid on the floor of the banquet hall when Antony was her guest, and then had netting spread above this elastic carpet.

Ancient Earthworks in Tennessee.

BY B. G. BRAZELTON.

Tennessee abounds in these ancient works. They are scattered along the Tennessee River from its mouth to its source; and over the western part of the State, along the tributaries of the Doe River, are great numbers of mounds and walls of earth. Some of these works, from their arrangements, were doubtless erected for purpose of self-defence. On the east side of Middleton's Creek, a little north of Barham's mills, in Hardin County, are some remarkable earthworks. At this place a wall of earth four hundred and fifty yards in length commences at the creek, near the mill, and curves around northward to the creek again, taking in about four acres of ground, on which stands a mound covering about half an acre of ground, and rising eighteen feet above the common level. Between the wall and the creek is a trench, plainly to be seen, from whence the earth was taken to build the mound and wall. The wall at its northern terminus is about fifteen feet in height, but it diminishes in elevation as it approaches the creek near the mill, where it is barely traceable.



Near the Mobile and Ohio Railroad, in Madison County, are several large mounds—the largest being about eighty feet high, and on its top is a beautiful plateau of about one acre, which is cultivated for a garden. But the most remarkable fabrics of the "Ancient Builders" in this State are on the east bank of the Tennessee River, in Hardin County, where the town of Savannah now stands. At this place a ridge of high land makes to the river between two creeks, the mouths of which are about one mile apart. A line of fourteen large mounds run parallel with the river from creek to creek; some of them covering half an acre of ground, and rising from ten to thirty feet above the common level. These mounds stand back on the level about seven hundred feet from the turn of the bluff, and they are of different sizes, the largest and tallest occupying a position near the middle of the line. A ziz-zag wall of earth, accompanied by a deep trench, which is still plainly traceable, commences at the mouth of one creek and curves around to the mouth of the other, taking in the mounds and a considerable amount of country back of them. Here, doubtless, was a city of the "Mound Builders." The wall was certainly erected for purpose of self-defence, and the mounds were, perhaps, used for watch-towers.

From one of these mounds a copper wedge and eight copper pullies were taken a few years ago by Mr. Rufe Russell, a citizen of the town. The wedge is about four inches long, two inches broad, and half an inch thick at the thickest end, and the wheels of the pullies are about an inch and a half in diameter and one inch thick. Several years previous to Mr. Russell's discovery, a

small cannon, nearly eaten up with rust, was taken out of the river bank at this place by persons making a wharf. It has been asserted by some wise heads that here, doubtless, was the Indian town on a large river, at which place De Soto stopped for several months on his way to discover the "Father of Waters," and where he left the heaviest of his baggage. If such was the case, he certainly left the wedge and pullies, and the Indians buried them where they were found.

I have known several mounds in this State to be examined; some contain plenty of human bones, others Indian pottery, iron ore, and very often plenty of ashes and charcoal are found in the centre and near the base of the mound. I have in my possession a piece of lode stone, about one inch and a half long, and is of an oval shape, possessing great polarity. It was found by an old farmer about forty years ago. While plowing over a mound, something adhered to his plow; by some exertion he pulled it loose and found it to be a powerful magnet.

This piece of lode stone is nicely dressed, and when suspended by a string, one of its ends point north, the other south. Considering this as cotemporary with the mounds, of which we have no reason to doubt, we can easily see that the ancient settlers were not without something to guide them in their travels.

The question has been often asked, who were the "Mound Builders?" but no definite answer has ever been given.

For what purpose were these mounds erected? This is another question for those who are wise in years to answer. That they were thrown up for burial places I cannot believe, as the bones found in them are in too good a state of preservation to be regarded as cotemporary with the mounds. My opinion is, that thousands of years must have elapsed since the desertion of these fabrics, and the extinction of the people by whom they were erected. Ask the oldest Indian and he will tell you that he knows nothing of their history.

These mounds were not in existence previous to the Ancient Ocean, whose waters once covered the great valley of the Mississippi; but by the upheaval of the land, the waters receded southward; the dry land appearing destitute of vegetation was, doubtless, first inhabited by the "Mound Builders," who as they traveled southward, erected their monuments, which are destined to last for centuries to come.

Flowers in the Tropics.

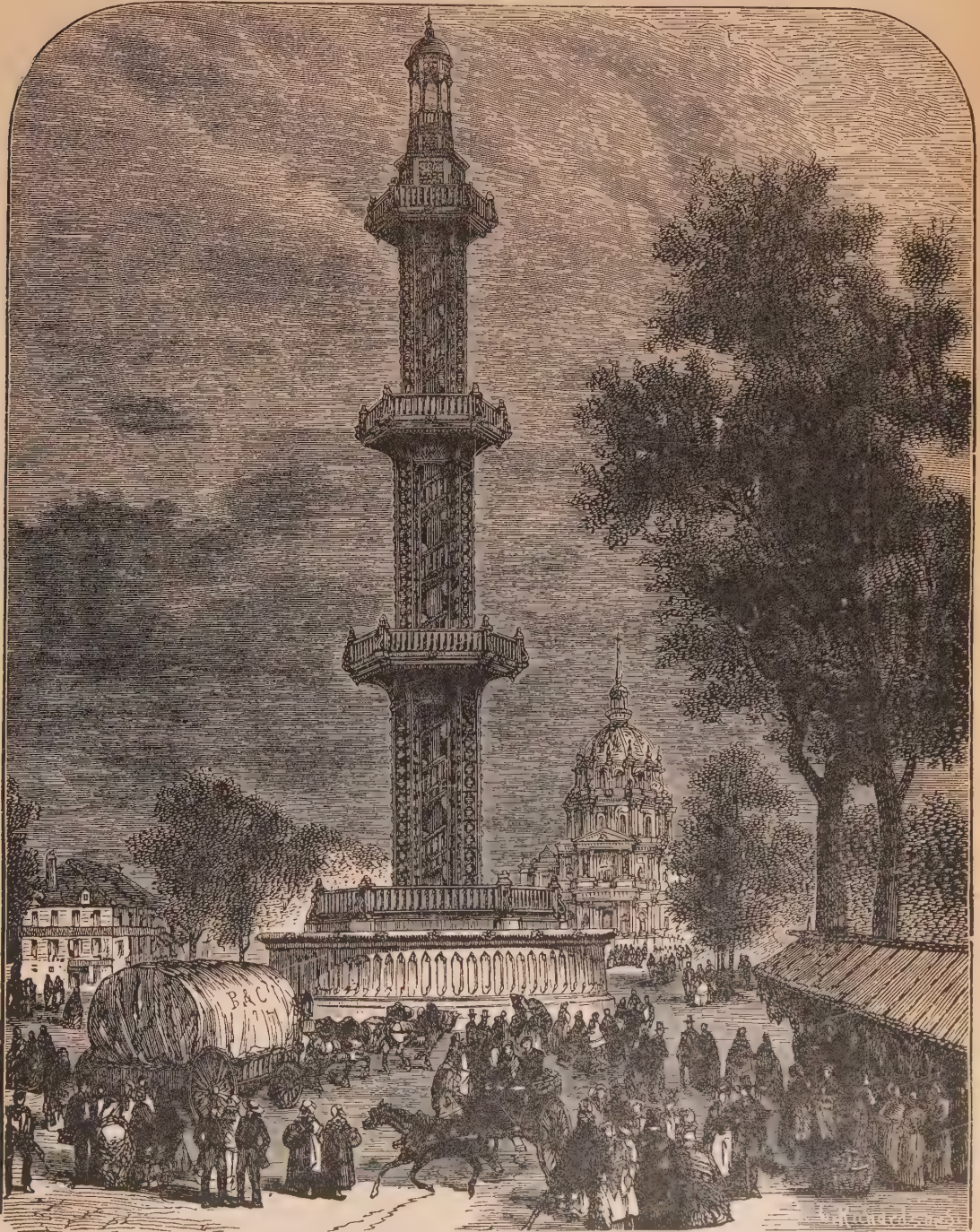
A lady writer from the Isle of Singapore gives the following glowing picture of tropical flowers.

"We gathered whole handfuls of the lotus or water lily, with its pale blue, golden, or rose-tinted blooms gleaming up from the sparkling waters. There are many varieties of this exquisite flower, blue, pink, carnation, bright yellow, royal purple fringed with gold, and more beautiful than all, pure virgin white, with the faintest possible rose tinge in the centre of each section of the corolla, a just perceptible blush, as of its own conscious loveliness. The last is the royal flower of Siam; borne before the king at weddings, funerals, and all state festivals, and the royal reception rooms are always beautifully decorated with the young buds arranged in costly vases of exquisite workmanship. In moist portions of the jungle were whole groves of fragrant pandanus, ferns of infinite variety, a species of wild mignonette, spotless japonica, fragrant tuberose, Cape jessamine, wild passion flower, the Calla Indica, with its five long petals of heavenly blue, then the innumerable company of roses, tea, moss, perpetual, cluster, climbing, variegated, and a score of others, queenly still even amid such a gorgeous array. The Victoria Regia and Rafflesia Arnoldi, the two largest flowers in the world, we saw in Dr. A.'s garden—the flower of each two feet in diameter. Rarest of all was the night-blooming cereus. There were six blooms in full maturity, creamy waxen flowers of exquisite form, the leaves of the corolla of a pale golden hue, and the petals intensely white. Its wondrous perfume is exhaled just at nightfall, and readily discernible for a mile. The odor partakes largely of that of lilies, violets, tuberose and vanilla. It reaches perfect maturity about an hour before midnight; at three o'clock its glory is beginning to wane; at dawn it is fading rapidly; and by sunrise only a wilted, worthless wreck remains."

ARTESIAN WELLS.

They are so named from the province of Artois, in

them at an early period. Artesian wells are small holes sunk in the earth by boring, through which currents of water, struck at great depths, rise to the surface, and sometimes flow over.



ARTESIAN WELL AT GRENELLE, PARIS, FRANCE.

France, anciently called Artesium, in which they have a long time been in use. They appear to have been known to the ancients, being occasionally alluded to by some of their writers. The Chinese also used

Water thus pressed up must have its source in some more elevated lands, and be confined in the strata of the rock, through which it has percolated; precisely as water is conveyed in pipes below the

surface, and is pressed up into our houses to a height nearly equal to that at which the pipes commenced.

Water finds its way down into the earth by flowing into the crevices and chasms of the rocks, and by percolating through the porous strata. In a region of limestone rocks it hollows out for itself its own bed, by dissolving the limestone and even in this way produces great caves. The large streams that flow through these, and the innumerable little subterranean rivulets, circulate between the layers of rock, seeking constantly lower levels. When forced by the pressure behind they are pushed up through any apertures they meet, or that are opened for them, and flow out as springs or as artesian wells.

Underground currents are met with frequently at different depths, confined between different strata of rock, and having no connection with each other. If the first supplies struck do not rise to the desired height, the boring is continued in search of others below that well. It is sometimes the case that the head of water is at so high an elevation the column bursts forth from the ground as a fountain; throwing up a continual jet d'eau. The principle is precisely that of our artificial fountains. By raising the water above the surface in a pipe, and letting it flow over, convenient water power is obtained. Artesian wells are applied to this purpose at many localities in France; the quantity of water they supply being found sufficient to run heavy machinery. These wells are particularly valuable in a region where water is difficult to be obtained. Upon arid plains and prairies, or limestone formations, through which the surface water soon finds its way and is lost, they are of great importance. The natives of some parts of the Desert of Sahara, have sunk them with success to the depth of 1,200 feet. Their successful introduction in the dry limestone region of Alabama, will, no doubt, be followed by their general use in similar localities throughout the western states. From the great depth at which the currents of water are reached, their supplies may be regarded as permanent, provided so many wells are not sunk in the same neighborhood as to endanger exhausting the largest reservoirs. In the vicinity of London it is observed that the height to which the waters rise, diminishes as the number of wells is increased. In 1833, the supply of water from them was estimated at 6,000,000 gallons daily, and in 1851 at nearly double the amount, and the average annual fall of the height of the water is about two feet. But in cases of single wells, the supply of water, or the height to which it rises, is seldom known to vary. One at Lillers (pas de Calais) has been in steady operation since the year 1126. By their depth, also, the water brought up is warmer than that found near the surface.

The hot springs that flow out to the surface in many parts of the world are natural, artesian wells, rising from great depths. Warm waters obtained by artesian wells have been applied to useful purposes connected with manufacturing. In Wurtemberg, large manufactories are warmed by the water being sent through them in metallic pipes. A constant temperature of 47° is thus maintained when the temperature without is at zero. Hospitals and greenhouses are also kept warm in the same manner.

The strata of clays, sands and limestones, which form the tertiary basins of London and Paris, are particularly well arranged for furnishing water by artesian wells. In these basins are concentrated the greatest number and the most expensive of these wells.

The engraving given herewith represents the artesian well of Grenelle, in the Paris basin, which is famous as the deepest among them. Seven years and two months of constant labor were devoted to the boring—the rock being extremely difficult to pierce.

At the depth of 1,254 feet, the tubing broke off, and fell with 270 feet of rods to the bottom of the hole. Fifteen months were spent in breaking these and extracting them in pieces. At 1,500 feet the government would have abandoned the enterprise but for the urgent appeals of M. Arago. It was continued. On February 26, 1841, at the depth of 1,792 feet, the boring rod suddenly penetrated the arch of rock over the subterranean waters and fell several yards. In a few hours the water rose to the surface in an immense volume, and with great violence, bringing up sand and mud. To check this supply it has been found necessary to raise a verticle pipe many feet into the air, in which the water rises and flows over. Its temperature is uniformly 82° F. The extreme depth is 1,806 feet. The water is perfectly limpid, and flows at the rate of 50,000 gallons in twenty-four hours. This is the well that is made use of for warming the hospitals at Grenelle.

Artesian wells, sunk for bringing up salt water, are common in the United States, especially in New York, Pennsylvania and Virginia. The deepest well in this country is that sunk at St. Louis, Mo. This has reached the enormous depth of 3,843 feet, or in that locality, 3,000 feet below the sea level. This would give a water pressure at the bottom of 1,293 pounds to the square inch. The deepest bore in the world is one begun as a salt mine and yet incomplete, at the village of Spereburg, some twenty miles from Berlin. Its present depth is 4,194 feet. Some seventy-five shafts have been sunk in the Desert of Sahara, which yield an aggregate of 600,000 gallons an hour. The effect of this supply of water is said to be plainly apparent upon the once barren soil of the desert. Two new villages have been built, and 15,000 palm trees have been planted in more than 1,000 new gardens.

Of all the wells sunk in the United States, none are so remarkable for the difficulties encountered and successfully overcome as that at Charleston, S. C. Since the year 1824 no less than five attempts have been made by the city government to obtain good water by this means. In 1848 the last operation was commenced under the direction of Major Welton, who had had much experience in sinking artesian wells in Alabama. The strata first penetrated were alluvial sands, saturated with water, which caused them to run as quicksand. These were shut out by cast iron tubing of six inches diameter, which penetrated the clays and marls of the postpleiocene formation, and finally reached the depth of 230 feet, where it rested upon a rock of the eocene formation. From this point down alternations of hard rock and loose sands were met with; the latter causing the same trouble as those above, running in and filling the well, sometimes even to the height of 140 feet up from the bottom in a single night. When it was found impossible to draw out the sands from these beds, the plan was adopted of shutting them out by tubing. The sinking was extended to 1,250 feet; the last strata being sandstones, sand and marls, probably of the cretaceous formation. The discharge, ten feet above the surface, is about 1,200 gallons an hour. The water is saline and disagreeable to the taste, but soft. Its temperature is 87°. It is used for steamboats, and the demand is such that another well, thirty feet distant, was commenced in February, 1856.

In New York city, artesian wells were sunk years ago by Mr. Levi Disbrow, and the business has since been continued to the present time by his son, Mr. John Disbrow. The structure of the island is exceedingly unfavorable for very successful results to be expected from these enterprises, the strata being nearly vertical, and separated from all more elevated districts by deep salt water channels. The supply of fresh water likely to be met with below the surface cannot, therefore, be very large; nor can it, for want of sufficient head, rise to any great height in the wells. One of the oldest and deepest of these wells is at the United States Hotel, known, when the well was sunk, as Holt's, between Pearl and Water streets.

Numerous artesian wells are being sunk along the line of the Pacific Railroad, in order to obtain water for the workmen laboring in the coal mines along the route. The first well is at Separation, 724 miles from Omaha, and the last one is at Rock Spring, 832 miles.

It is believed that for agricultural purposes the mineral salts could be washed out of the water obtained from wells in the above vicinity, so that soil irrigated therewith would probably prove remarkably productive.

A flowing well, furnishing 1,000 gallons per hour, will water a section of 640 acres. If bored 1,000 feet in depth, the cost would be about \$10,000. Out on the plains this outlay would make a most productive farm, which might be made the nucleus of a stock range of thousands of acres, having, besides, an ample supply for human consumption.

The process of boring artesian wells is conducted by augers or drills attached to an iron rod, and this connects by screws to another rod, and so on to any length required. To the upper end of the rod a transverse handle is attached, by which the instrument is partly turned round by two men at each time it is raised and dropped. The cutting edge of the auger or drill thus clips a fresh line across the bottom of the hole at each blow. The blow is given by the rod falling by its own weight after it is lifted a few inches. The lifting is done by men at the handle, assisted by another one at a higher elevation, who vibrates a long horizontal pole, fastened at one end in a pile of stones, to the middle of which the rod is suspended by a chain. The vibration of this elastic pole lifts and drops the rod, and the workmen turn it by the transverse handle. But the weight of the rods become at last too heavy to be raised by men, and machines are contrived to be worked by horse power. At the well of Grenelle it required eight to work the whim or machine for lifting out the rods.

The various kinds of instruments employed for sinking the hole, enlarging it, and raising out the material as it accumulates, and for breaking up the instruments themselves, or the rods that may become detached and drop in, are too numerous and of too complicated forms to be described without drawings; and the same may be said of the various operations connected with the sinking of the holes.

The well-known slow process of the work is owing to the time required for drawing out the whole length of rods to discharge the ground-up fragments that collect in the bottom of the hole. This must be done with every few inches sunk, or even oftener than this; and as the work used to be done, it was necessary, after drawing out all the rods to which the drill was attached, to send them down again with a cylindrical spoon, gathering up the fine fragments. This was then lifted out, each length of the rod unscrewed as it came up, and then the whole returned with the drill to recommence sinking.

An improved and more simple process has been introduced, taken from the Chinese, by whom it has been in practice from time immemorial. Their artesian wells are wonderful for their depth and numbers.

The missionary, Imbert, stated in 1837 that in the province of Ou Tong Kiao, in a district ten leagues long and four leagues wide, these wells may be counted by "tens of thousands," sunk at very remote periods for the salt water and bituminous matters which come out with the waters. These products are met with at the depth of nearly 1,800 feet; and some of the wells that had lost them have been carried down even to 3,000 feet.

Instead of using rods to sink these wells, the Chinese suspend the cutting drill, which is attached to a heavy metallic rod six feet long and four inches in diameter, by a rope or chain, which passes over a wheel. Around the drill is a cylindrical chamber, which by means of simple valves takes up and holds the broken fragments. As the rope is raised and dropped it gives by its tension a turn to the drill, causing it to vary its position at each stroke. When the cylinder requires to be discharged, it is easily wound out by a windlass or horse whim. The rope is protected from wear by knobs of wood attached to it at intervals.

This principle has been successfully applied in Germany to sinking holes for ventilating mines. With large drills, eighteen inches in diameter, a hole of this size has been carried down several hundred feet deep.

We have authentic accounts that in France, by this new method, an operator, M. Collet, contracts to sink wells in the chalk formation as deep as desired at nine francs the running metre, which is fifty-one cents the foot. His apparatus costs only one hundred dollars. With the aid of two workmen he sinks at the rate of twenty-five to thirty-five feet a day in the chalk. He

has already sunk near one hundred wells, each of which has furnished pure water, at an expense not exceeding sixty dollars.

With such results it may well be regarded as extraordinary that the old process still continues in use.

Ancient Musical Instruments.

Some years ago Capt. Willock, when engaged in his researches among the supposed ruins of Babylon, found a pipe of baked clay about three inches long, which, by common agreement of antiquities, is of Assyrian workmanship. This little object can hardly be less than 2,600 years old, and is probably the most ancient musical instrument in existence. It has two finger-holes, and when both of these are closed, and the mouth-piece is blown into, the note C is produced. If only one hole is closed, the sound emitted is E, and if both are open G is produced. Thus the notes of this instrument, which is believed to be the very oldest yet discovered, produces the tonic, the third, and the fifth—that is, the intervals of the common chord, the notes which, sounded together, form what is termed by musicians the harmonic triad. Here is at once established a certain coincidence between our music and that which must have existed during the Babylonian captivity—a coincidence which, to be sure a *priori* reasoning might go far to establish, but never so convincingly to non-scientific understandings as does the evidence of this insignificant pipe. The least observant student of the art-remains found among the ruined cities of the Assyrian and Babylonian plains cannot fail to be struck with the evidence which they afford of a strong and widely-diffused musical culture among the kindred races who inhabited them. The frequent introduction in mural paintings and bas-reliefs of instruments of music, the representations of concerts and long processions of musicians, the repeated allusions in the Bible to the musical habits and skill of the people of Babylon, all point to a singular development of the art of music. In the opinion of Rawlinson, the Assyrians were superior in musical skill, as they were in every form of culture, to the Egyptians themselves, and the Assyrio-Babylonian music was, there is little reason to doubt, an early and yet a highly developed form of the Asiatic type of music—a type which possesses to this day most extensive and most characteristic developments among the slow-changing nations of Asia. If we are asked for more positive proofs of the advance of music among this nation, we point to the unmistakable evidence afforded by the constructional complication of many of their instruments. We have from among the ruins of Nineveh countless representations of the harp, with strings varying in number from ten to twenty-six; of the lyre, identical in structure, though not in shape, with the lyre of Greece; and of an instrument differing from any known to modern musicians. It was harp-shaped, was held horizontally, and the strings, six to ten in number, were struck by a *plectrum* held in the right hand; it has been called the *asor*, from its resemblance to the Hebrew instrument of that name. We find frequent representations of a guitar-shaped instrument, and of a double pipe with a single mouthpiece, and finger-holes on each pipe. Besides these, the Assyrians had musical bells, trumpets, flutes, drums, cymbals, and tambourines. Almost every one of these instruments, either in its original form or slightly modified, is in use to this day by some one Asiatic or African nation. The ancient Greeks adopted the lyre and the double-pipe; the former is still used by the Abyssinians under the name of *kissar* (Greek, *kithara*). The double-pipe the present writer has himself seen in use by the boatmen of the Nile. The guitar of the Abyssinians is probably identical with the long-necked guitar or *tamboura* depicted on both Assyrian and Egyptian monuments, and still in use all over the East, and even in Hindoostan. The ancient Assyrian harp is remarkable for not having the "front pillar" which completes the triangle in the European harp, and this apparent defect of construction is characteristic of every sort of harp employed in Asia at this day. On Assyrian bas-reliefs we find representations of concerts, in which several of these instruments are taking part. In one, for instance, we see seven harps, two double-pipes, a drum, and the above-mentioned *asor*.

The Great Wall of China.

The great wall of China was measured in many places by Mr. Unthank, an American engineer lately engaged on a survey for a Chinese railway. His measurements give the height at 18 feet, and a width on top of 15 feet. Every few hundred yards there is a tower 24 feet square and from 20 to 45 feet high. The foundation of the wall is of solid granite. Mr. Unthank brought with him a brick from the wall, which is supposed to have been made two hundred years before the time of Christ. In building this immense stone fence to keep out the Tartars, the builders never attempted to avoid mountains or chasms to save expense. For 1,800 miles the wall goes over plain and mountain, and every foot of the foundation is in solid granite and the rest of the structure solid masonry. In some places the wall is built smooth up against the bank or canons or precipices, where there is a sheer descent of 1,000 feet. Small streams are arched over, but in the larger streams the wall runs to the water's edge and a tower is built on each side. On the top of the wall there are breastworks or defenses facing in and out so the defending force can pass from one tower to the other without being exposed to any enemy from either side. To calculate the time of building or cost of this wall is beyond human skill. So far as the magnitude of the work is concerned, it surpasses everything in ancient or modern times of which there is any trace. The pyramids of Egypt are nothing compared to it.

Queen Elizabeth's Cup.

This costly example of olden taste, is in the possession of Colonel Gwatkin, whose mother (a niece of Sir Joshua Reynolds,) obtained it from her sister, who married the Marquis of Thomond, in whose family it had been preserved for a long period of time. The cup is of silver gilt; the rim around the cover is engraved with an arabesque, and bears traces of colored enamels and stones which have decorated the leaves and flowers of which it consists. This is the only piece of engraved work upon the cup, for the cover, sides, and knob are completely covered with precious stones, many hundreds in number, secured in separate cells, and ranged closely together in rows entirely round the vessel. These stones are amethysts of various tints; the interstices of the setting of each being filled with turquoises, which are, in some instances, as minute as seed pearls, to allow every part of the cup to be encrusted with precious stones. The knob on the top of the cover, and the three upon which it stands, are similarly covered with jewels. Those which form the feet unscrew, a hollow tube affixed to the bottom of the cup passes partially through each, and a screw, the head of which contains an amethyst, fits into this tube from beneath, and completely conceals the mode of securing them. A false bottom of thin silver is held on by these screws, and covers a cipher; the letters being "E. R.," conjoined in a scroll, characteristic of the reign of the sovereign whose ownership has thus been carefully stamped upon it.

The weight of the cup is considerable; it holds about half a pint. It exhibits more barbaric magnificence than real taste; yet is characteristic of the time in which it was made.

In the reign of Elizabeth, a superstitious belief in the hidden virtues of precious stones was current, which gave them a value independent of their rarity and beauty. The amethyst in particular, was believed to possess the power of repelling intoxication, and it, therefore, became a fitting incrustation for the cup of a female sovereign; hence, this gift was liberally decorated with so valued a stone.

The belief in the medical and magical virtues of precious stones, was a doctrine much inculcated by the Arabian naturalists, who believed that the amethyst prevented inebriation, and the turquoise strengthened the eyes and was a remedy against passion; and it was from the East that we obtained our belief in their hidden efficacy. During the time of Elizabeth, it is not likely that much faith was placed in such mysticism; but the affectation which characterized her court, might have induced the maker of this cup to resort to the quaint conceit of an older faith to render his work the more acceptable.

A Great Naturalist.

Robert Dick gathered insects while he collected plants. They both lay in the same beat. After his bread was baked in the morning and ready for sale, he left the shop to the care of his housekeeper and went out upon a search. Or he would take a journey to the moors or mountains, and return home at night to prepare next day's baking. He began to make his entomological collection when he was about 25 years old. He worked so hard at the subject, and made so many excursions through the country, that in about nine months he had collected specimens of nearly all the insect tribes that Caithness contained. He spent nearly every moment that he could spare, until he thought that he had exhausted the field. He worked out the subject from his own personal observation. He was one of those men who take nothing for granted. Books were an essential end, but his knowledge was founded not on books, but on nature. He was not satisfied with the common opinion as to the species or genus to which any individual of the insect world belonged. If he had any doubts about an insect from a gnat to a dragon-fly, he would search out the grub, watch the process of its development from the larva and chrysalis state, until it emerged before him in unquestionable identity. * * * Few constitutions could have stood the amount of toil and privation which he endured, during his long course of inquiry into the fossils, plants, grasses and mosses, over the length and breadth of Caithness. Robert Dick had often walked from 50 to 80 miles between one baking and another, with little more in his scrip than a few pieces of biscuit.

The Nautilus.

The Nautilus, a genus of small cephalopodous mollusks, has ever been of peculiar interest to naturalists, and also it has been a prolific source of poetic fables. It was often called the "little sailor," "little fairy ship", and other names of like character, originating from the false idea entertained that the Nautilus trimmed its two broad tentacles into sails while resting upon the surface of the sea and floated after the manner of a ship before the breeze. Hence the old saying: "Learn of the little Nautilus to sail."

The form of the body is ovoid, and furnished with eight tentacles covered with cups, six of which taper from the body to the ends and two which expand, sail-shape. A thin shell covers the body with spiral shaped interior. The mouth is surrounded with several small tentacles without cups. The shell is divided into several cavities, or cells, by partitions and a tube called siphon occupies the centre of each partition. The orifice of the siphon is at the head, and when the animal desires to move, it gathers up its six long arms into a line, then violently ejects water it has taken in and the force of this drives the queer creature along.

It is said to float very gracefully over the water and really has the appearance of being moved by the action of the wind upon its little (so called) sails.

People who have seen them upon the ocean say that large collections of the queer species may be seen upon the surface in some localities about sunset, and being of different colors look very beautiful from reflected lights. If anything disturbs them they fold themselves up and sink out of danger's way.

Sailors at one time looked upon the Nautilus as a particular friend and believed to meet with it was an omen of good luck.

THE scales used at the U. S. Assay Office are so delicate that a hair turns the balance. You can ascertain by them the difference in weight of two eye-lashes. They are made of aluminum, and might be compared to a snow-flake.

Do not kick every stone in the path. More miles can be made in a day by going steadily on than by stopping.

FRIED CAKES.—One pint basin of sweet milk, one tea-cup heaping full of butter or lard, one teaspoon of salt, two eggs, nearly a cup of hop yeast, two tablespoons of cinnamon; use four enough to mix to the consistency of biscuit; let rise till very light, then knead and cut into cakes; let them rise again and then fry. These will not absorb lard while cooking.

Rice Fields.

The aspect of the lowland rice fields of India undergo magical changes during the successive seasons. In Java, for instance, you will see the long-legged heron, sagely wading over the inundated plains, and a few months later beautiful fields of grain wave over that same locality. Cords, to which scare-crows are attached, are strung across the fields in all directions, and from a nucleus, or central elevated position, the watchman sits and occasionally pulls upon the cords when the wind is idle, and the jerking, flapping images scare up clouds of thievish birds which were enjoying a stolen repast. In Ceylon, the rice fields rise in terraced slopes—broad, beautiful green-carpeted steps—to the hills above. Artificial irrigation is resorted to in this arrangement, water being supplied from huge tanks built in the vicinity, from whence it is conveyed in cooling streams from terrace to terrace, and thus assisting to furnish food for the immense population of the countries round about. But there is a kind of rice that will flourish on upland slopes without continual watering. In Sumatra, this species of mountain rice is cultivated. In the Indian Archipelago, they grow a sort of marsh rice, which is first thickly sown in small beds, and afterwards, the plants are transferred to fields previously softened by water. As the grain reaches maturity, for weeks the ground is left dry, when the ears begin to take on the rich golden hue so pleasing to the husbandmen. Could there only be introduced into this climate energetic and systematic labor, two crops of this grain might be annually gathered.

The swamps of South Carolina afford soil admirably adapted to growing this cereal; but an idea of its introduction and cultivation there is of comparatively modern date. Sometime during the last century, we read that a vessel from Madagascar, chancing to put into Carolina, left a small quantity of rice seed, which the captain suggested to a gentleman, to sow. A fine crop was the result, and after a time it was dispersed about the colony, and experimenting and observing, the planters at last succeeded in bringing its culture into general favor.

But there are draw-backs and discouragements mingled with the successes of rice culture. Besides the devastations made upon the crop by immense numbers of rice buntings—beautiful birds that nest and sing at the North in summer—the malaria arising from the hot, damp swamps, sweep off numbers of laborers each season.

Brazil, Java, Bengal, and other countries export immense quantities of rice to Europe.

In some rice-growing countries like that of the mountain districts of Sumatra, after the rice is harvested, they sow the field the second time with maize, then the ground lies fallow for a few years, only as it grows up to wild, luxuriant shrubs, and wonderfully tall grasses. Ere the field is again cultivated, they have to fire the slopes, for already has the jungle tiger made his lair in this wilderness thicket, and the rhinoceros taken it for a grazing ground. The flames leap to the work like a living thing; they shoot up the dry reed stalks in glowing arrows; they crackle, and rush, and roar, and make the way impassable for the traveler, but present a rare and beautiful spectacle when night brings out the red glory of the burning hills and terraces.

Vulcan.

In unenlightened periods, the violent agencies of the elements, as well as the appearances of the heavenly luminaries, excited astonishment and were deified. Traces of the worship of fire are found in the earliest times. The Egyptians had their god of fire, from whom the Greeks derived the worship, called by the Romans, *Vulcanus* or *Vulcan*. Fable styles him the son of Jupiter and Juno.

On account of his deformity, his mother thrust him from Olympus; or, according to another story, Jupiter hurled him out because he attempted to help Juno when fastened by the golden chain. He fell upon the island Lemnos, afterwards his chief residence, and was, according to the later fictions, lamed by his fall.

To Vulcan was ascribed the invention of those arts

that are connected with the smelting and working of metals by means of fire, which element was considered as subject to him. His helpers and servants in such works were the Cyclops, sons of Uranus and Gaia, whose residence was also in Lemnos.

The epithet, Cyclopean, is applied to certain structures of stone, chiefly walls, in which large masses of rough stone are nicely adjusted and fitted together.

Mount Ætna was represented as the workshop of Vulcan, so also Sipara, one of the Æolian Isles, called likewise Vulcanian. Works requiring peculiar art and extraordinary strength, especially when metals were employed as materials, were called by the poets, Vulcan's masterpieces. Among these were the palaces of Phœbus, of Mars, and Venus, the golden chain of Juno; the thunderbolts of Jupiter; the crown of Ariadne; the arms of Achilles, and of Æneas, etc. Vulcan is said to have formed, by request of Jupiter, the first woman; she was called Pandora, because each of the gods gave her some present or accomplishment.

A calf and a male pig were the principal victims offered in sacrifice to him. Those who followed arts and employments requiring the use of fire, especially rendered honor and worship to Vulcan. "The lion, who in his roaring, seems to dart fire from his mouth, was consecrated to Vulcan, and dogs were set apart to keep his temple."

Vulcan was usually represented as engaged at his work with hammer and pincers in his hands, sitting more frequently than standing. His lameness is not indicated in any existing monuments, although it was in some ancient statues.

Vulcan was represented covered with sweat, blowing with his nervous arms the fires of his forges. His breast was hairy, and his forehead blackened with smoke. Some represented him as lame and deformed, holding a hammer in the air ready to strike, while with the other hand, he turns with pincers a thunderbolt on his anvil. He appears on some monuments with a long beard, disheveled hair, half naked, and a small round cap on his head, with hammer and pincers in his hands. The representation of Vulcan show that the anvil of ancient times was formed like the modern.

The Olive Tree.

The common olive is one of the earliest trees mentioned in antiquity; probably it was a native of Palestine, and perhaps of Greece, and it was introduced into other countries at a very early day. It is largely cultivated in Southern Europe, Western Asia, and Northern Africa. It was brought to South America and Mexico more than two hundred years ago, and in various parts of California it is planted at the mission establishments, where some of the old groves still remain. Of these, San Diego is yet in notably good bearing condition; and other plantations have recently been made there. In the Atlantic States, the olive was introduced before the Revolution, and at several times since. It is perfectly hardy and fruitful in South Carolina. The chief obstacle to its cultivation seems to be the fact that its crops mature just the time when all the planter's help is required to gather and secure the more lucrative cotton crop. The French enumerate over twenty varieties, differing in size and color of their leaves and fruits. Olive oil is obtained from the ripe fruits, the pulp of which contains about seventy per cent. of oil. Italy produces annually about 33,000,000 gallons, while the production of France is only about 7,000,000 gallons.

Lobsters Decreasing

The great number of lobsters now used for canning, necessitating a constant war upon them, from Boston to Halifax, to supply the demand, is reducing their numbers and size so rapidly that the complete extinction of the species in another generation is prophesied. The great decrease in their size is particularly noticeable. Once there were lobsters in Faneuil Hall Market which it required the strength of both arms to lift from the bench; now most lobsters are not much too large to put into the vest pocket.

THE first lesson for childhood should be that of earning its pleasures. To get whatever it craves as soon as it asks for it is the worse training a child can have.



The Red Breast of the Robin.*

AN IRISH LEGEND.

Of all the merry little birds that live up in the tree,
And carol from the sycamore and chestnut,
The prettiest little gentleman that dearest is to me,
Is the one in coat of brown and scarlet waistcoat.
It's cockit little Robin?

And his head he keeps a-bobbin'
Of all the other pretty fowls I'd choose him;
For he sings so sweetly still,
Through his tiny slender bill,
With a little patch of red upon his bosom.

When the frost is in the air, and the snow upon the ground,
To other little birdies so bewilderin',
Picking up the crumbs near the window he is found,
Singing Christmas stories to the children,
Of how two tender babes
Were left in woodland glades,
By a cruel man who took 'em there to lose 'em;
But Bobby saw the crime;
(He was watching all the time!)
And he blushed a perfect crimson on his bosom.

When the charming leaves of autumn around us thickly fall,
And everything seems sorrowful and saddening,
Robin may be heard on the corner of a wall
Singing what is solacing and gladdening.
And sure, from what I've heard,
He's God's own little bird,
And sings to those in grief just to amuse 'em;
But once he sat forlorn
On a cruel Crown of Thorn,
And the blood it stained his pretty little bosom.

* Our cut represents an English robin.

India-Rubber and Gutta-Percha.*

These two resins are identical in some respects, and on account of their extensive use for many purposes, together with the fact that their origin is unfamiliar to many persons, deserve a more extended description than that given to the other resins.

The first of them, india-rubber, is the product of a tree found in Cayenne, and other parts of South America. This tree, known as the syringe-tree, (*Ficus Elastica*), attains a great height, a singular fact concerning it, being that excepting a small space of about ten feet in circumference on the top, it has no branches.

The india-rubber is obtained by making a hole through the bark of the tree, and collecting the liquid which exudes therefrom in the form of a vegetable milk. The work of collecting the resin is chiefly done in rainy weather, as although it can be obtained at any time, it then flows in greater quantities. As thus obtained, it possesses a nearly white color, and is exposed to the air by being spread over moulds of clay. Here it soon becomes thick and hard, when another layer of juice is placed over the first, and so on till it is of the thickness required. It is then placed over a strong fire of burning vegetables, which hardens and darkens it, and gives it the texture and appearance of leather.

The chemical elements of india-rubber are carbon and hydrogen, and when it is dissolved in either petroleum, ether, or benzol, it swells up and forms the varnish used

to such a large extent for water-proofing purposes. Combined with sulphur, it forms what is known as *vulcanized india-rubber*. If the latter be heated to a certain temperature, it will become hard and capable of being utilized for combs, knife handles, buttons, etc. Of its other uses little need be said, since all must be aware of them.

Gutta-percha is a gum resin, the product of a tree found in the East Indies, and obtained therefrom in a manner similar to that of india-rubber. It possesses less elasticity than the latter, but does not, like it, lose its elasticity by being heated to a high temperature.

It is composed of carbon, hydrogen, and resinous matters, and on account of being a good non-conductor of electricity, it has been extensively used for insulating telegraph wires. Its non-conducting heat power is also considerably utilized for water pipes, as the water enclosed therein rarely freezes.

Sugar.

Sugar is of modern use only. The ancients were unacquainted with it as an article of commerce or of common use. What a revolution in our household affairs would it occasion to strike sugar from the list of dietary articles! It is a necessity, not a luxury. Within the last four hundred years it has grown from being an article of curiosity or luxury to be one of the great staples of commerce. It enters every department of domestic economy. Humboldt says that in China it was known and used in ancient times; but if known at all in western Asia or Europe till within the last few centuries, it was only as travelers brought it as remembrances of foreign climes and distant travel. There is some foundation for the idea that it was not entirely unknown to the ancient Greeks. We find in the classics mention made of honey that bees did not make, and honey from reeds—the sugar-cane being a reed. From their expressions, it is thought that sugar is meant, as all sweet articles were included in the term honey in early days.

Pliny says there is a kind of honey from reeds which is like gum, and it is used as a medicine. Some allusions in the Bible seem to refer to sugar and honey. In later times, it is said that the Crusaders found sweet-honeyed canes growing in the meadows of Tripoli; that they sucked these canes, and were delighted with the operation; that these canes were cultivated with great care, and, when ripe, were pounded in mortars, and the juice was strained and dried to a solid, like salt; that, mixed with bread, it was more pleasant than honey. In 1420, the Portuguese brought the cane to Spain, Madeira, and Canaries, and thence it was carried to the West Indies and Brazil. In these countries it found the conditions for its rapid development, and the world was soon furnished with the products of these countries; so that sugar assumed a place among the chief articles of commerce.

Shamoy Skins.

Shamoy skins are, as every one knows, largely used for many purposes—for inside linings of gloves, etc., and for cleaning purposes in many departments. It is not derived from the skin of the chamois, as is some times ignorantly supposed, from the sound of the name, which results from the process, but from the flesh side of the sheep-skins which have been split. The skins, after having been passed in the ordinary way through the earlier processes of washing, etc., are soaked, first in lime-water, and next in a mixture of bran and water, or in a weak solution of sulphuric acid, after which they are beaten in a mill till no moisture remains in them. Fish oil is then poured over the skins, which are again beaten until they are thoroughly impregnated with it. This is done over and over again until the skins can receive no more oil, and then they are hung for a short time in a room heated up to a certain temperature. They are then carefully washed in a solution of potash, which removes any oil that may still remain about the leather; and thus we have the shamoy skin of daily use.

How to GET ALONG.—Do not stop to tell stories in business hours. If you have a place of business, be found there when wanted.

The careful person in time of plenty will prepare for a famine.

An Ancient Fortification

In nearly every State in the Union, proofs are found of the former existence of a race of people far superior to the Indians in point of intellect. These proofs are of various kinds, and several of them have already been described in the columns of the GROWING WORLD.

In the New England States, little is found except remains of ancient pottery, with an occasional arrow-head. In the Southern States, many curious relics of the same kind have been discovered, besides several architectural structures, and a number of rocks covered with hieroglyphics or picture-writing. Near the celebrated copper mines in Michigan, abundant proofs are found that this metal was mined hundreds of years before Europeans visited America. In the vicinity of the "Salt Sicks," of Kentucky are many ancient salt wells, and occasionally is found an earthen pan for the evaporation of salt water.

The Middle States are especially noted in this respect for their numerous mounds and fortifications, there being no less than thirty in New York alone. In Pennsylvania, there are still more. But the largest and best preserved one of all is in Ohio.

It is situated in the town of Newark, at the junction of Racoon Creek and South Fork, two small rivers which unite at this point to form the Muskingum. At the eastern extremity of the fortification is a square fort containing twenty acres. Two covered walks connect this fort with Racoon Creek, which is about half a mile north. One and a half miles south, is a circular enclosure containing twenty-six acres. Parallel walls of earth connect them. Parallel walls running west from the first enclosure, connect it with an eight-sided enclosure, nearly four miles distant. This fort contains forty acres. It is connected by high parallel walls with the Racoon Creek, which flows about one mile north.

A short distance southwest, and connected by similar walls is another circular enclosure containing twenty-two acres. In the center of the latter fort is an observatory built of earth and stones. Thirty miles south, is another fortification, and there are ruins of a wall which once connected it with the octagonal enclosure before mentioned.

On the north, east, and west sides of the principal enclosure, is a very steep embankment of earth, forty feet in height, and nearly eight miles long. In the northeastern angle of this embankment, where it turns abruptly to the south, are numerous small mounds, evidently used to inter the dead, for, when opened, human bones, arrow-heads, pieces of pottery and copper ornaments are found in many of them.

At the head of one of the mounds, formerly stood a large stone, covered on both sides with picture-writing, representing a man in combat with several wild beasts of different kinds. But this was removed many years ago, and carried away by a party of French gentlemen. It is not known in whose possession it is at the present day, even if it has not been destroyed.

Scientific men are disagreed as to who built these fortifications; some thinking that they were built by the Aztecs, others claim that they were built by a race of people who were exterminated by the Indians. There is some ground for both of these theories; but there are also serious objections to both. In the first place, the style of architecture is wholly different; the relics are different, and the hieroglyphics are different. In fact, there is no resemblance at all except in the size and shape of the head. But a more serious objection is, that in the time of Cortez, the Aztecs claimed to have come from the south.

In regard to the second theory, it is founded upon a tradition of some tribes of Indians, that they came from the north, and meeting in this country with people of another race, made war upon them and conquered them. If this be true, it does not follow that these were the builders of the mounds. In fact, it does not seem reasonable that a nation so numerous and powerful as the Mound-Builders are known to have been, could have been conquered and put to death by a mere handful of naked savages, with no engineering skill, and weapons far inferior to their enemies.

A little more than a hundred years ago, Newport, R. I., had a greater foreign trade than New York

The Florida Crocodile.

The two American species of *crocodilus*, viz., *rhombifed* and *acutus*, were first described by Cuvier as confined to the West Indies and South America, which view was accepted by naturalists for a long time. Subsequently the *C. acutus* has been discovered in different parts of Central America, and in 1870 Prof. Jeffries Wyman described a skull from Florida as belonging to that species. Reports are current in Florida of a true crocodile existing there, but specimens have not been secured until very recently. The present year has thrown more light upon the subject by the capture of two fine specimens. My personal observations on the subject were confined to the south-east coast of Florida, particularly the vicinity of Biscayne Bay. While there last Winter collecting for the museum of Prof. Ward, of Rochester, N. Y., I obtained sight of a reptile that I at first supposed to be a large alligator, but which a nearer view convinced me was a crocodile. After two unsuccessful attempts I succeeded in killing him by lying in wait for him with my rifle, opposite his favorite mud-wallow on the bank of the stream. It proved to be a male—huge, old, and ugly. His tenacity of life was surprising, and his frantic struggles in and out of water made the fight interesting for some time. He lived for quite an hour after six rifle-balls had been fired into his nape in the direction of the brain. He measured fourteen feet in length, and his girth at a point midway between fore and hind legs was five feet two inches. His teeth were large and blunt; his head rugose and knotty, with armor plates very large and rough, all conspiring to give him a very ugly and savage appearance. On dissection it was found that he had been very pugnacious, or else was a persecuted and unfortunate individual. Three of his teeth were more or less shattered; the tibia and fibula of the right hind leg had been broken in the middle and united, also one of the metatarsal bones of the same limb; about five inches had been bitten off the end of his tail, leaving it quite blunt, and for some reason, probably an old wound, two of the vertebrae near the middle of the tail had grown together solidly at an awkward angle. The day following the above capture (Jan. 22, 1875), I had the further good fortune to kill at the same spot the mate of this crocodile, a beautiful female measuring ten feet eight inches. There was a striking contrast between the two specimens. The head of the female was regular in outline, comparatively smooth, teeth white, regular, and sharp, plates even in surface and contour, and colors very marked. The entire under surface of both specimens was pale yellow, shading gradually darker up the sides with fine irregular streaks and spots of black. On the upper parts of the female through the entire length the black and yellow mottling was about uniform, the yellow rather predominating. The general appearance of the female was decidedly yellowish, while the back and tail of the male showed an almost entire absence of yellow, the prevailing color being a leaden, lustreless black. In brightness of color, smoothness of armor, and litheness of contour the female greatly outranked her rough and burly lord. The stomachs of both specimens were quite empty, but in the oesophagus of the male were the torn remains of two mud-hens in a state of disgusting decomposition. The ovary of the female contained 420 eggs, varying from the size of No. 8 shot to a hen's egg, all perfectly spherical. The exact locality of the captures was a narrow, very deep and crooked stream known as Arch Creek, flowing from the Everglades into the head of Biscayne Bay. While at Biscayne I collected abundant evidence that crocodiles, though rare, exist in various tributaries of the bay. On the bank of Arch Creek I found the skull, fifteen inches long, minus the lower jaw, of a crocodile belonging to the same species as the large specimens. No one could give any information concerning it.

GOOD WOMEN.—The modest virgin, the prudent wife, or the careful matron are more serviceable in life than petticoated philosophers, blustering heroines, or virago queens. She who makes her husband and children happy, who reclaims the one from vice and trains the other to virtue, is a much greater character than ladies described in romance whose sole occupation is to murder mankind with the shafts from the quiver of their eyes.

The Augean Stables.

Extending along the Ionian sea, from the promontory Araxus to the river Neda, in ancient Greece, was a country belonging to the Peloponnesus. It contained about one thousand square miles, including the western slopes of the Achian and Arcadian mountains. It was a rough, hilly, broken country, but had many beautiful, fertile valleys, occupied by rich people who had beautiful homes. The principal rivers of the country, called Elea, were the Alpheus and the Peneus. There were three principal cities in this country, or Peloponnesus State—Ellis, the principal one, named after Elea; Pisates, and Pyrrhia. They were unwall'd cities, but were held to be sacred. Once every four years at Ellis assembled vast multitudes to hold religious games. The horses of Elea or Ellis as the country was called, were celebrated for their strength, swiftness and intelligence.

Augeas was king of this country, Elea. At his stables in Ellis, he had a herd of three thousand oxen. It was the duty of his chief herdsman to keep this number of choice oxen always on hand. If one died the loss must be replaced immediately. This kept a demand for blood-ed stock, or oxen of a certain quality, and those who could raise that kind of animals sold them at a profit and were paid for their services, coming to the king who encouraged farming and agricultural pursuits by continually giving prices and premiums to those who by their skill and labor made Elea to be a very rich district or state.

These stables were in a valley, on a plain, and for thirty years had not been cleaned out. The oxen had been moved a little from place to place at times so that the ground on which they had stood for thirty years had been raised to a high shaped prominence from which streams ran to the original plain, giving offense to farmers and breeding disease.

Hercules, a hero of antiquity, son of Jupiter by Alcmena, was by his father destined to occupy the throne of Perseus, but by the connivance of Juno was superseded by Eurystheus, the grandson of Perseus. Such was the strength of Hercules that people came to fear him. No matter what seemingly impossible task was given him, it was performed. He was a hard man to beat. No matter how often he was knocked out of time he rallied again. He was strong, gifted by the gods, and always held the winning hand. People came to consider him more than mortal. The king kept heaping impossibilities upon the life of this young man Hercules, but he did all that was commanded of him. He was ordered to go forth and slay a large Nemean lion that was devastating the country. Hercules went forth, blocked up one of the entrances to the lion's den, then went in by the other, slew the beast and brought the carcass to Eurystheus.

One day the King Augeas ordered Hercules to clean the royal stables where the 3,000 oxen had been for thirty years, and to do it in one day! The king had been greatly vexed because the seeming impossibilities he had commanded of Hercules had all been performed. At a royal dinner he told his courtiers that he would break the spirit of Hercules and bring him to admit that there was something he could not do. Therefore he issued his royal edict that within twenty-four turns of the hour-glass, Hercules, with such help as he could obtain from the poor of the city who were his friends, should clean out the royal Augean stables.

Hercules called the boys together, and they cut the banks of the two rivers, Alpheus and Peneus, turned the course of the streams into the valley where the stables were, and in a few hours oxen, stables, and thirty years of accumulated compost were swept away like a wagon-load of rubbish by a flood.

While the king was asleep, some twenty hours after his orders were given, officers of the guard rushed into his apartments telling that Hercules had cut the banks, the rivers had leaped from their courses, and that his oxen and stables were all swept away. He ordered the troops to hasten to the place and turn the currents back to their proper channels; but no troops or monarch could stem or stop the flood. Hercules appeared before the expiration of the last hour of the twenty-four, reported that the stables were cleansed, and asked for his reward. Augeas refused to give it, whereupon Hercules slew Augeas and all his sons but one, Phyleus, whom he made king in place of his father.

The World's Gold.

The Ural Mountains, Australia and the United States are the most productive sources of gold supply, the first yielding \$20,000,000 annually, the second \$37,000,000 and the third \$35,000,000. Prior to the discovery of the rich mines of the United States the total production was only \$68,000,000 per annum.

The fever for gold hunting, which was excited by the finding of the great mines of the Pacific coast, rapidly increased the yearly production, until, in 1850, it reached over \$120,000,000, and five or six years later gold bullion was mined to the extent of the enormous sum of nearly \$185,000,000. This was the largest yield of any one year, and since production has gradually fallen away, and seems to have finally reached an equilibrium of about \$100,000,000 per annum, nearly all of which is found in the three regions named. Now, if this represented the actual yearly increase in the volume of gold which is used as the basis of the currency of gold-using countries, it might serve, unassisted, as a standard. But the fact is, this production does little more than supply the place of that which disappears from circulation as money annually by loss and wear, or metamorphosis into articles of commerce.

A few years ago some English statistician, after a careful investigation, estimated the yearly loss of gold coin to the British treasury was £5,000,000 sterling, and, calculating from this basis, the loss to the world must amount to nearly the total production, and therefore little addition to the bulk of gold in the treasuries of all nations can be expected. It is true that new mines may be found. It is not to be supposed that there are no undiscovered regions rich with auriferous deposits. But against this are the uncertainties of discovery, with an almost certain decrease of the present production. That there has been a large increase of the stock on hand during the past quarter of a century cannot be denied, but this has been due principally to the remarkable discoveries in the United States, which in a few years doubled the store. Thirty years ago the entire stock of gold coin was only a little more than \$3,000,000,000. Now it is \$7,500,000,000, but the increase was made during a few years, and the past decade has added little to the stock.

The Peat Bogs of Ireland

They cover some three million acres of surface mainly in the heart of the country, though extending into every part of it. Many thousands of acres, chiefly in the northeast, have been brought into cultivation; of the rest, some yields a little sour pasture, but the main portion is of use only as it yields cheap fuel to the poor. These bogs are of all depths, from a few inches to thirty or forty feet. The shallow parts are those reclaimed for cultivation, and some of the deeper sections, by ditching and draining, are rendered fit for the farmer's use. The peat and turf are cut up, piled into heaps and dried, when it is burned and the ashes evenly spread over the soil, this, with the moist climate insures tolerable crops. It is supposed by many that these bogs were once the site of mighty forests of oak and fir, which dying fell into the peat where the moss and fungus growth soon covered the trunks and the forest growing, dying and falling, during the long centuries brought the peat inch by inch to its present depth.

Chemical discoveries have utilized the peat in several ways and promise to do more through its agency. There will be peat coal of great heating capacity and free from clinkers; peat charcoal, free from sulphur; peat tar of valuable preservative powers for saving timber, and convertible into illuminating gas; also, acetate of lime, and a crude sulphate of ammonia well known as an energetic fertilizer. So these waste places, as they were deemed a short decade ago, prove a mine of wealth to the developing mind and capital invested in their utilization.

How are we led to wonder at the miracles of wealth which the Creator has stored away for the use of man. Nature's great savings banks have no defaulters and honor all drafts that are made upon them. No wonder our Maker looking forth upon His handiwork pronounced it all good. All is in keeping with the perfected plan, and only through man's short-sightedness is the divine order and harmony disturbed, but never overthrown.

High Mountains.

The highest mountain on the North American continent is Mount St. Elias, in Alaska, whose elevation is 17,900 feet. Next to it comes the volcano of Popocatepetl, in Mexico, 17,884 feet, and Orizaba, also in Mexico, 17,383 feet. If the newly discovered peak of the Holy Cross, in the Yellowstone region, found by the Hayden exploring party, be really 17,000 feet high, as they estimate, it will be the fourth peak in elevation on the continent of North America, and the highest mountain in the United States, excluding Alaska. Heretofore the highest peak in this country was supposed to be Big Horn Mountain, which is elevated 15,000 feet.

Lavender Culture.

Comparatively few persons are aware to how large an extent the culture of lavender for commercial purposes is carried on within a radius of thirty miles from London. In the county of Surrey alone there are nearly three hundred and fifty acres of land devoted to its growth, and the total extent of the lavender fields in the London district cannot fall far short of five hundred acres. When three years old the plant is at its best, and when it reaches the age of seven years it has made so much wood that it is more profitable to uproot it and set a fresh plant. The harvest-time depends much on the state of the weather, but it usually commences about the first week in August. The flowers are cut with a sickle, bound up in small sheaves, and immediately carried to the distillery. There the stalks are cut off, leaving but a little more than the flowers, by which the bouquet of the oil, afterwards extracted, is much improved, though the quantity of the oil is sensibly diminished. Much care is needed on the part of those who handle the sheaves in the distilling house to guard against being stung by the bees which remain attached to the flowers. The temperance, industry, and providence of these insects are proverbial; yet their behavior in lavender fields, especially toward the end of the season, when the flowers are fully developed, cannot be too severely reprobated. So careless are they of the good reputation they have earned that they refuse to leave their luscious feast even when it is laid on the trimming bench, and hundreds are thrown into the still, notwithstanding the efforts to dislodge them, in a state of helpless intoxication. When the oil is first distilled, it has a peculiar empyreumatic odor, but by being kept in bottles for twelve months it loses much of its harshness. It is still, however, unfit to be used as a perfume in its natural state. In order to convert the essential oil into what is known as lavender-water, it is mixed with from twenty to forty times its bulk of spirits, and with just a trace of neroli, or other essential oil, according to the taste of the compounder.

The Furies and Harpies.

BY J. J. WORTENDYKE.

Among the divinities of the lower world were three daughters of Acheron and Night, or of Pluto and Proserpina, whose office it was to torment the guilty in Tartarus, and often to inflict vengeance upon the living. The Greeks called them Furies, and also, by a sort of euphemism or form design to propitiate them, Furios, signifying *kindly disposed*. The Romans styled them *Furixæ*. These names were Tisiphone, whose particular work it was to originate fatal epidemics and contagion; Alecto, to whom was ascribed the devastations and cruelties of war, and Megæra, the author of insanity and murders. Temples were erected and consecrated to them both among the Greeks and Romans, and among the latter a festival also.

They were represented with vipers twining among their hair, usually with frightful countenances in dark and bloody robes, holding the torch of discord or vengeance.

The fable of the Harpies seems to have had reference originally to the rapidity and violence of the whirlwind, which suddenly ceases and carries off whatever it strikes.

Their names were Aello, from storm; Celaxcem, from dark, and Ocypeta, from flying rapidly, all indicative of the source of Fiction.

They were said to be daughters of Neptune and Terra, and to dwell in islands of the sea, on the borders of the lower world, and in the vicinity of the Furies to whom

they sometimes took off the victims they seized. They were represented as having the faces of virgins and bodies of vultures, with feet and hands armed with claws and sometimes as with the tails of serpents.

The Dæmons or Genii, and Manes.—In the earliest mythologies, we find traces of a sort of protecting deities or spiritual guardians of men, called Genii. They were supposed to be always present with the person under their care, and to direct their conduct, and control in great measure their destiny, having received this power as a gift from Jupiter.

Bad demons as well as good, however, were imagined to exist, and some maintained that every person had one of each class attendant upon him.

The Satyrs and Fauns.—The idea of gods of the forests and woods, with a form partly of men and partly of beasts, took its rise in the earliest ages either from the custom of wearing skins of animals for clothing, or, in a design to represent symbolically the condition of man in the semi-barbarous or half-savage state. The Satyrs of the Greeks, and the Fauns of the Romans, in their representations, differed from the ordinary human form only in having a buck's tail with erect pointed ears.

The Gorgons.—Three imaginary sisters, daughters of Phorcys and Cete, were so termed from their frightful aspect. Their heads were said to be covered with vipers instead of hair, with teeth as long as the tusk's of a boar, and so terrific a look as to turn every beholder into stone. They are described as having the head, neck, and breasts of women, while the rest of the body was in the form of a serpent. According to some, they had but one eye and one tooth, common to them all, which they were obliged to use in turn. Their names were Stheno, Euryale, and Medusa.

Medusa is said to have been slain by Perseus, who cut off her head while they were in the act of exchanging the eye. The Amazons were no doubt mythical beings, although said to be a race of war-like women who lived near the river Thermodon in Cappadocia. A nation of them also was located in Africa. They are said to have burnt off their right breast, that they might use the bow and javelin with more skill and force.

A Curious Tradition.

A curious book might be written, or, perhaps compiled, of the traditions of North American Indians. They are a nation of traditions. They have a tradition regarding the origin of even the most common things with which they are acquainted; but the most curious of them all is that of the Iroquois regarding those huge bones which are found scattered over the country, and which the researches of Cuvier and others have proved to belong to an extinct species of elephant, known as the mammoth.

The tradition, as told to Col. Morgan, is that after the Great Spirit had made the world, he created all the birds and beasts which now inhabit it. He also made man, but, having formed him white and very imperfect and ill-natured, he was not all pleased with him. Then he took black clay, and made what the white man calls a negro. This was much better, but still the Great Spirit was not satisfied. So he placed the negro and the white man on one side of the great water, and took a piece of pure red clay, of which he formed the red man perfect to his mind. He was so well pleased with him that he placed him on this island, giving him rules for his conduct, and promising him happiness in proportion to his good behavior.

For many generations his descendants lived in great happiness, but at length the young men forgetting and neglecting to obey those rules, became ill-tempered and wicked, in consequence of which, the Great Spirit created a great buffalo, which made war upon the human species alone, and killed all but a very few. These repented and promised the Great Spirit that they would always obey his laws if he would kill the enemy. The Great Spirit, conciliated by these promises, sent a thunderbolt and destroyed the whole race with the exception of two, a male and female, which he shut up in a mountain where he still holds them in readiness to let loose upon mankind again should occasion require it.

The Roman Empire in its glory was not so large as the present area of the United States.

The Antarctic Region.

A superficial thought would lead one to suppose that as we leave the barren, icy, desolate regions of the Polar World, and come next into the temperate regions, so on to the tropical belt, or Torrid Zone, with its astonishing luxuriance of animal or vegetable life, that exploration would round off and finish in these scenes of magnificent and sweltering beauty; but not so. Beyond this the South Pole, or Antarctic Region, stretches wild, frozen, and infinitely desolate, so that the vivid fancy causes the mind to recoil from contemplating the terrible picture.

At the North, the indomitable explorer sees open channel-ways beckoning him each year to fresh exertions and new discoveries; but in this awful Antarctic ocean, impregnable breastworks of ice hem in their farther progress. Not a flower here, only blades of coarse grass; even the invincible mosses of frozen countries fail to "put in a strong appearance" in this forsaken region.

This country of the South Pole—if one may speak of it in this way—is described by the few hardy men who have gone down to that sea in ships, as awful beyond description. Icebergs shifting under the impenetrable fogs, and pushing glistening, fluted promontories out before the straining ship, and projecting in slippery, merciless cliffs as if about to fall upon the doomed vessel's decks. Occasionally the yielding of one of the frozen crags to its accumulating weight broke it asunder; and while the awe-struck sailors watched through the solemn fog-walled night, they heard fierce hissings and horrible rushing noises and heavy detonations like submarine explosions, or the cannonading of some monster giants behind their fortresses of everlasting ice.

No fur-clad human being here to lift the inquiring glance at the strange ships riding at anchor outside the glacier-walled coast; no companionable animal crossing with swift foot or investigating tread, upon these barren peaks, only the shrill screams of the sea fowl riding on the drift ice, or taking their swift or sluggish flights over frozen cape, promontory, hill, or vale. Here, congregate the petrel family of several species; the giant petrel or cannibal, it should be termed—even devouring its own kind if one happens to be wounded; and the albatross and penguin also frequent this locality. The hoarse voices of the latter making a diabolical clatter when any number of them became excited.

Whales and dolphins are found in this ocean, also seals of the species called sea elephants, because of their monstrous size; and, although they present a formidable appearance when enraged, they are very easily killed by the hunter.

The explanation of the colder and more barren aspect of the South Pole than that of the North, is found in the fact, that while there is much land, mountains, hills, and forests in the Arctic country, the predominance of ocean in the Antarctic, the flatter inland surface of country, and the constant detachment of immense bodies of ice, and its continuous falling into the sea, keeps the temperature down to a remarkable degree of coldness; and we are led to wonder, if in the endless changes of worlds and time, in the planets moving from east to west and from north to south, if the future will of the Poles will be different from its present. We believe it may be so. The seasons may change or soften their rigors there, and some Heaven-sent bird or messenger will bear away to those remote and forsaken countries the germs of a new existence. Some island sloughing from the known continents, or from unknown ones—seed strewn, vigorous and adhesive—may rest its foot upon some hidden anchorage and become the central points of a new country.

With God all things are possible, and with an eye of faith glancing down the coming time, we believe that science, aided by Divine inspiration, will reveal in discoveries undreamed of by the present generation. With exultant foreknowledge, we cry: "Speed the mind that seeks for the unspeakable riches of God's creation."

It is not in our open, exposed deeds that we need the still voice of the silent monitor, but in the small, secret, every-day acts of life, that conscience should prompt us to beware of the hidden shoals of what we deem too common to be dangerous.

"Gas; its Origin and Manufacture."

To whom the credit of the discovery of gas is due is not certainly known. History informs us that in the time of Alexander the Great, the Persians made use of the gas escaping from natural crevices in the surface of the earth for the purpose of lighting up their altars, which were sometimes placed near such crevices. Certain provinces in China have also been celebrated for two thousand years for the large quantity of inflammable air or gas which issues from the earth. Many other cases of the spontaneous production of gas could be given, such as the fires of Baker near the Caspian Sea, jets of inflammable air on the road between Florence and Bologna, etc.

With all these and many other precedents for the theory that gas could be used as an illumining agent, no such use seems to have been made of it until Richard Murdock, an engineer and miner of Cornwall, about 1792, conceived the idea that gas, as obtained from coal, might be conveyed to a distance through pipes, and thus made use of. He had, previous to this time, made himself well acquainted with the manner of producing it, but hitherto made no other use of it beyond collecting it in bladders, and, making a small hole in the latter, light the escaping gas for the amusement of his friends.

Acting on the idea, he soon introduced and perfected all necessary arrangements, and at length had the satisfaction of seeing his house lit up with it. Since then, in the manufacture of gas, great strides have been made but in perfection of quality and quantity manufactured.

The apparatus at present employed consists of an iron retort, set in a furnace so that it may be uniformly heated. The retorts are cylindrical in shape, flat on the ends, and generally one inch thick. From the top of the retort an outlet-pipe ascends, dips in cold water, and makes a curve which causes it to terminate in another pipe called the hydraulic main. The outlet-pipe is arranged that a water-valve commands it at the point where it dips into the water before being connected with the hydraulic main. The use of this valve is obvious, since no gas can return to the retort after having passed the valve on its way to the hydraulic main. The latter is a large, horizontal pipe running from one end of the building to the other.

The retorts having been filled with coal, and sealed so that the flame of the fire cannot get to their contents, the fire underneath is lighted. All the products of the distillation, with the exception of the coke, which remains in the retort, are volatile, and therefore go up the outlet-pipe to the hydraulic main. With the latter are connected a number of smaller pipes running alternately up and down, which receive the volatile products from it, and are so constructed as to condense those products and allow the fluid matters to run off into a tank. The latter products are utilized for tarry matters, etc., as hitherto described.

From the pipes, the gas passes to vessels filled with lime. These vessels are called purifiers, as the lime in them perform this work by absorbing hydrogen and carbonic acid. Sometimes an air-pump, worked by a steam-engine, is employed to draw the gas from the retort to the purifiers. This is called an exhaustor, and is of great service. From the purifiers the gas is conveyed, ready for use, to the storage tanks.

A River of Ink.

Among the wonders of nature in Algeria, there is a river of genuine ink. It is formed by the junction of two streams, one flowing from a region of ferruginous soil, and the other draining a peat swamp. The waters of the former are, of course, strongly impregnated with iron; those of the latter, with gallic acid. On meeting, the acid of the one stream unites with the iron of the other, and a true ink is the result. The banks of the united stream would be, of all places in the world, the one for a colony of authors. Fields of esparto grass, for paper-making, might be sown in the neighborhood; the paper-mills might be turned by the inky flood, and geese might be reared to supply quill pens. The members of the republic of letters would there do nothing all day long but sit dangling their feet in the water, and occasionally dipping in their pens.—a peaceable crew, except perhaps when they would plague each other by reading long extracts from their unpublished works.

Manufacture of Gold Leaf.

The process of gold beating is exceedingly interesting in its various details, and is one which requires the exercise of much judgment, physical force and mechanical skill. The gold must first be properly refined. The process is as follows: The coin is first reduced in thickness by being rolled through what is known as a "mill," a machine consisting of iron rollers operated by steam-power. After being rolled, it is annealed by being subjected to intense heat, which softens the metal. It is next cut up and placed in jars containing nitromuriatic acid, which dissolves the gold, and reduces it to a mass resembling Indian pudding, both in color and form. This solution is next placed in a jar with copperas, which separates the gold from the other components of the mass.

The next process is to properly alloy the now pure gold, after which it is placed in crucibles and melted, from which it is poured into iron moulds called ingots, which measure ten inches in length, by one inch in breadth and thickness. When cooled, it is taken out in the shape of bars. These bars are then rolled into what are called a "ribbon," usually measuring about eighty yards in length, and the thickness of ordinary paper, and retaining their original width. These "ribbons" are then cut into pieces an inch and a quarter square, and placed in what is called a "cutch," which consists of a pack of French paper leaves resembling parchment, each leaf three inches square, and the pack measuring from three quarters of an inch to an inch in thickness. They are then beaten for half an hour upon a granite block, with hammers weighing from twelve to fifteen pounds, after which they are taken out and placed in another pack of leaves called a "shoder." These leaves are four and a half inches square, and the gold in the "shoder" is beaten for four hours with hammers weighing about nine pounds. After being beaten in this manner, the gold leaves are taken out of the "shoders" and placed in what are called "molds." These "molds" consist of packs of leaves similar to the other packs, and made of the stomach of an ox. After being made ready in the "molds," the gold is beaten for four hours more with hammers weighing six or seven pounds each.

It will be noticed that the thinner the leaf becomes, the lighter are the hammers used, and it is also necessary in beating the gold, especially in striking the "mold," that the blow should be given with the full flat of the hammer, and directly in the centre of the "mold." Should the beater strike with the edge of the hammer, there is every chance that the leaf will be broken and the pack spoiled. The leaf, after being taken out of the "mold," is cut into squares of three and three-eighths inches, and placed in "books" of common paper. Each "book" consists of twenty-five leaves, and there are twenty "books" in what is known as a "pack."

Gold foil is made in a similar manner to gold leaf, except that the sheets are thick and annealed separately, while the chief distinction is that it has, if a genuine article, no alloy whatever. The article known as "German gilt" is not made from gold at all. The wood upon which it is to be placed is first made exceedingly smooth, and then painted with a preparation which, being covered with silver leaf, has the property of producing a gold-like appearance.

Cerberus.

Cerberus was the fabled dog of Pluto, stationed as sentinel at the entrance of Hades. He is generally described as having three heads, sometimes as having fifty.

Snakes covered his body instead of hair. None from the world of the living could pass by him but by appeasing him with a certain kind of cake, composed of medicated and soporific ingredients. To seize and bring up this monster was one of the labors assigned to Hercules. Scylla and Charybdis are the names; the former, of a rock on the Italian shore in the strait between Sicily and the main land, and the latter, of a whirlpool or strong eddy over against it on the Sicilian side. The ancients connected a fabulous story with each name.

Scylla was originally a beautiful woman, but was changed by Circe into a monster, the parts below her

waist becoming a number of dogs, incessantly barking, while she had twelve feet and hands, and six heads with three rows of teeth. Terrified at this metamorphosis, she threw herself into the sea, and was changed into the rocks which bear her name. Charybdis was a greedy woman who stole the oxen of Hercules, and for that offence was turned into the gulf or whirlpool above mentioned.

The Sphinx was the offspring of Orthos and Chimarus, or of Typhon and Echidna, a monster having the head and breast of a woman; the body of a dog; the tail of a serpent; the wings of a bird; the paws of a lion, and a human voice. This monster infested the neighborhood of Thebes, proposing enigmas and devouring the inhabitants who could not explain them.

At length one of the enigmas, in which she demanded what animal it was which walked on four legs in the morning, two at noon, and three at night, was solved by Ædipus; he said that the animal was man, who in the morning of life, creeps upon his hands and feet, in middle age walks erect, and in the evening of his days uses a staff.

On hearing this solution the Sphinx instantly destroyed herself.

The Griffin was an imaginary animal, said to be produced from a lion and an eagle, and supposed to watch over mines of gold and whatever was hidden. Its image is sometimes found on ancient medals, the upper part resembling an eagle, the lower part a lion.

In the Greek mythology, Typhon is ranked among the giants, said to have been produced from the earth by Juno striking it; described as having a hundred heads like those of a dragon. In Egyptian mythology, the monster called Typhon holds an important position, being considered the cause of all evil—"the Egyptian devil." He is described and represented in various ways, sometimes as with a hundred dragon heads; sometimes as a wolf; sometimes as a crocodile, with the head and fore-legs of a hippopotamus.

Roman Luxury.

All students of history learn something of the "decline and fall" of Rome, and that her luxuriousness was the chief cause of her bankruptcy and ruin. But the astonishing and reckless prodigality with the fashionable people of the last days of the Empire spent money to add to their pleasures can hardly be imagined without seeing the details. Their extravagance in ornaments, dresses, sumptuous living, and rich furniture, surpassed all the display of modern nations.

The palace of Nero glittered with gold and jewels. Perfumes and flowers were showered from ivory ceilings. The halls of Ælogabulus were hung with cloth and gold, enriched with jewels. His beds were silver, and his tables of gold. Tiberius gave a million of sesterces for a picture for his bedroom. A banquet dish of Æsillus weighed five hundred pounds of silver.

The art of using metals and cutting precious stones surpassed anything known at the present day.

In cookery, and in the decoration of houses in social entertainments, the Romans were remarkable. The mosaic, signet rings, cameos, bracelets, bronzes, vases, couches, banqueting tables, lamps, chariots, colored glass, gilding, mirrors, mattresses, cosmetics perfumes, hair dyes, silk ribbons, potteries, all exhibit great elegance and beauty. The tables of thuga root and Delian bronze were as expensive as the sideboards of Spanish walnut, so much admired in the great exhibition at London.

Wood and ivory were carved as exquisitely as in Japan or China. Mirrors were made of polished silver.

The Roman grandees rode in gilded chariots, bathed in marble baths, dined on golden plate, drank from crystal cups, slept on beds of down, reclined on luxurious couches, wore embroidered robes, and were adorned with precious stones.

They ransacked the earth and the seas for rare dishes for their banquets, and ornamented their house with carpets from Babylon, onyx cups from Bythnia, marbles from Numidia, bronzes from Corinth, statues from Athens—whatever, in short, was precious or curious in the most distant countries.

The luxuries of the bath almost exceed belief, and on the walls were magnificent frescoes and paintings, exhibiting an inexhaustive productiveness in landscape and mythological scenes.

The Coffee Tree.

Says La Roque: "The coffee tree is from six to twelve feet high; the stem ten, twelve, and fifteen inches in circumference. When full grown it resembles a young apple tree. The outer limbs bend down, rendering it the shape of an umbrella. The bark is whitish and somewhat rough; its leaf resembles that of the citron tree. It continues green throughout the year, and the tree is never without leaves, which are ranged almost opposite on each side of the bough and at a small distance from each other. At nearly all seasons of the year there are blossoms, green and ripe fruit at the same time upon the tree.

"When the blossom falls off, there remains in its room, or rather springs from each blossom, a small fruit, green at first, but which becomes red as it ripens, and is not unlike a large cherry, and very good to eat. Under the flesh of this cherry, instead of a stone, is found the bean or berry which we call coffee, wrapped round in a fine thin skin. The berry is then very soft and of a disagreeable taste; but as the cherry ripens, the berry in the inside grows harder, and the dried-up fruit, being the flesh or pulp of it, which was before eatable, becomes a shell or pod of a deep, brown color. The berry is now solid, and of a clear transparent green.

"Each shell contains one berry, which splits into two equal parts. When the fruit is sufficiently ripe to be shaken from the tree, the husks are separated from the berries and are made use of by the natives, while the berries are exported.

"The coffee for the next year's harvest blossoms in October, and the consumption of this fragrant berry is enormous, the exports from Rio Janeiro alone ranging up as high as two million bags a year, while other countries export a proportionally large amount."

House Spiders.

I have often observed, says a writer, the power in Gossamer Spiders of ejecting forcibly from the spinners a web which they use as a means of moving from one place to another. I was not aware until lately, however, that the same power was possessed by the common house spider.

I caught one of these the other day for the purpose of finding out if it was capable of ejecting its web by muscular effort, and I propose giving the result at length. Having placed my spider upon a pencil held between my finger and thumb, I watched him carefully, noting all his movements. The sage insect proceeded deliberately to take a tour round his somewhat limited quarters, and finding at length that he could not escape by either end, he carefully attached a web to the pencil and descended rapidly.

I wound the web up on the pencil, so as to prevent him reaching the ground, and after trying the same plan a good many times, he stopped in the middle of the pencil, and apparently "took a big think," the result of his meditation being another descent of about a foot from his support. He then gathered himself up into a little ball, elevating his abdomen, and, much to my astonishment, ejected the web unconnected as it proceeds from the spinner to the distance of about a foot, when the whole converged into a focus, as it were, forming a complete web, which continued sailing outward until it attached itself to my coat; the spider, after giving the web a few tugs, then passed over, and so escaped. Thinking I might be deceived as to the web coming out in so many parts, I caught several more, and repeated the experiment about a dozen times, so that there can be no doubt as to the fact. I shall be glad to hear that some one else has tried this, so as to confirm it.

A Curious Freak of Nature.

A curious freak of nature is found at Willough Lake, in the northern part of Vermont, where Mount Pisgah and Hor rise 2,500 feet from the water, and 4,000 feet above the sea, and are less than a mile apart, while the lake below is of unknown depth—all efforts to sound it have failed—and is supposed to rest at the level of the sea. A few years ago, an immense rock, weighing over 300 tons was started from its bed at the top of Mount Pisgah, and fell down the almost perpendicular face of


the mountain into the lake, tearing away the carriage road and everything that opposed it, shaking the whole region round, and being heard ten and fifteen miles away. The lake is an immense spring, as hardly a brook flows into it, but a river flows out large enough to carry extensive mills. A winding footpath conducts to the summit of Mount Pisgah, which is abruptly cut off on the side nearest the lake, forming a perpendicular precipice nearly 3,000 feet high, below which lies water of such singular transparency that one can see more than 100 feet below the surface. The temptation to leap from such a height is almost irresistible, and no one has yet visited the place of strong enough nerve to stand erect and look over the brink; but visitors crawl up on hands and knees to satisfy their curiosity. The view from this height is grand. To the east can be seen the White Mountains and the Connecticut River, winding down eighty miles of its course; to the north and northwest are Monadnock, fifty miles away, and the entire length of Lake Memphremagog; and to the west is seen the western range of the Green Mountains. The scenery is unsurpassed in New England, and the drive over the carriageway which skirts the lake and connects Orleans and Caledonia counties is the most picturesque of any in the State.

How a Bronze Statue is Cast.

The casting of a large piece in bronze is a delicate operation, requiring care and artistic skill. The making of a plaster mould from the original model, then a plaster figure from that mould, and finally from the figure a sectional mould into which to run the metal, requires many weeks of skilled labor. The element of luck enters largely into the culminating attempt to cast, as flaws in the metal often cause failures, imposing weeks of additional labor.

The large box called a "flask," containing the mould, clamped firmly with iron, was let down with a crane into a cavity, and flowed over, so that only a funnel protruded. This was close to a brick furnace, in which the bronze was heating over a great, roaring fire. The metal as it was slowly converted into liquid, was closely observed by the foreman. A glimpse through an aperture showed it boiling furiously like water, and so hot that an iron bar stuck into it became red almost instantly. When the iron could be withdrawn without any bronze clinging to it, the compound was deemed ready. An immense metal bucket, attached to a powerful crane, was swung under the end of a spout, the furnace was tapped and a molten stream ran out. Sparks flew in every direction, faces were shielded hastily from the heat, the dusty plaster images of Franklin, the Vanderbilt bas relief and other relics of previous jobs were made to glow. The bucket was nearly filled, a turn of the crank took it over the flask, and the liquid was, by tipping the bucket, poured into the mould, from which the suddenly-heated air rushed through the vent pipes with a noise like escaping steam. Some of the bronze slopped over and set fire to the wood floor, and the water that quenched the blaze made so much steam that nothing else could be seen for five minutes. The casting was perfect.

HASTE NOT WISDOM.—Hasty conclusions are the mark of a fool; a wise man doubteth—a fool rageth, and is confident; the novice saith, I am sure it is so; the learned answers, peradventure it may be so, but I prithee inquire. Some men are drunk with fancy, and mad with opinion. It is a little learning, and but a little, which makes men conclude hastily. Experience and humility teach modesty and fear.

 The house in which William Penn lived, situated in Philadelphia, is now occupied by a drinking house of the lowest order. Any other country in the world, almost, would have preserved this house from the slightest invasion. Well, we are young yet, and cannot be trusted any more than other children with valuable possessions.

GENEROSITY during life is a very different thing from generosity in the hour of death. One proceeds from genuine liberality and benevolence, the other from pride or fear.

JOAN OF ARC:

THE MAIDEN LEADER OF TROOPS.

At daybreak on the 30th of May, 1431, a priest entered the cell of a young woman at Rouen, and announced that he was come to prepare her for death. Not that the prisoner was ill—she was young, healthy, and in the full possession of her faculties; the death she was to suffer was a violent one—she was to be burned alive. Burned alive at one-and-twenty! What could this young

ment took the poor maiden entirely by surprise. A week before, she had been led out into a public place in Rouen, and compelled, in a moment of weakness, when surrounded by enemies—and not one kindly face among the crowd—and under circumstance of great excitement, to sign a document disavowing and solemnly abjuring certain charges of heresy which were preferred against her; and she had been told on that occasion that her life would now be spared, though she must resign herself to a sentence of per-



JOAN OF ARC'S HOUSE AT ROUEN.

woman have done? She had shivered the power of the English in France; she had, by means of an enthusiasm which rendered her obnoxious to the clergy, roused the French nation from the torpor into which it had been thrown by the stunning blows dealt to it by Henry V. of England, and she had dared to thwart the purposes and brave the anger of vindictive churchmen like the Bishop of Beauvais, and the Bishop of Winchester, Cardinal Beaufort. The prisoner's name was Jeanne Darc, or has she has been more commonly but erroneously called, Joan of Arc. The priest's announce-

petual imprisonment. The excuse for breaking faith with the poor girl was this: that since her abjuration she had said that St. Catherine and St. Margaret, with whom she asserted she was frequently in direct communication, had appeared to her, and rebuked her for her weakness in yielding to the threats of violence. On first hearing the announcement of the priest, Jeanne's firmness gave way; she wept, and gave vent to piteous cries, tore her hair, and appealed to "the great Judge" against the cruel wrongs done to her; but by degrees her self-possession returned,

and she listened to the ministrations of the priest, and received the last sacrament from him, and announced herself ready to submit to the will of heaven. At nine o'clock in the morning, she was carried away in the hangman's cart to the market-place in Rouen, where had been already laid the funeral pyre on which the young victim was to be sacrificed. The Bishop of Beauvais, Cardinal Beaufort, and several other prelates, with the English military commanders, were there, and a vast crowd had come out to see the "Maid of Orleans" die. In the centre of the market-place, about the spot where now stands a fountain surmounted by a figure of Jeanne Darc, the stake was reared, and around it were piled the faggots. Soldiers guarded the place of execution. The ceremonial of death was begun on that beautiful May morning by a sermon in which the crime of heresy was vehemently denounced; then the sentence pronounced by the shepherds of the flock upon the ewe lamb before them was published, and the signal was given to proclaim the last act of the tragedy. A soldier's staff was broken, and formed into a rough cross, which "the Maid" clasped to her breast. She was then bound to the stake, the faggots were lighted, the fire leaped up around her; and, after suffering the agony indispensable to death by burning, her spirit returned to God who gave it. The English cardinal watched the whole proceedings with unmoved face; and when his victim's life was beyond his reach, he ordered her ashes and bones to be gathered up, and to be cast into the Seine.

Joan of Arc was born January 6th, 1410, in the village of Domremy, in Lorraine, of poor but decent and pious parents. She was their fifth child, and owing to the indigence of her father, received no instruction, but was accustomed to out-of-door duties, such as the tending of sheep and the riding of horses to and from the watering place. The neighborhood of Domremy abounded in superstitions, and at the same time, sympathized with the Orleans party in the divisions which rent the kingdom of France. Jeanne shared both in the political excitement and the religious enthusiasm; imaginative and devout, she loved to meditate on the legends of the Virgin, and, especially, it seems, dwelt upon a current prophecy, that a virgin should relieve France of her enemies.

At the age of thirteen she began to believe herself the subject of supernatural visitations, spoke of voices that she heard and visions that she saw; and, at eighteen, was possessed by the idea that she was called to deliver her country and crown her king. An outrage upon her native village by some roving Burgundians raised this belief to a purpose; her "voices" importuned her to enter upon her mission by applying to Bandricourt, governor of Vaucouleurs; and this, by the aid of an uncle, she did in May, 1428. The governor after some delay, granted her an audience, but treated her pretensions with such scorn, that she returned to her uncle.

The fortunes of the dauphin, however, were desperate, and Bandricourt, pressed by her entreaties, sent her to Chinon, where Charles held his court. Introduced into a crowd of courtiers from whom the king was undistinguished, she is said to have singled him out at once.

Her claims were submitted to a severe scrutiny. She was handed over to an ecclesiastical commission, and was sent to Poitiers for examination by the several faculties in the famous university there. No evidence indicated that she was a dealer in the black art, and her wish to lead the army of her king was granted.

A suit of armor was made for her; a consecrated sword which she described as buried in the church of St. Catherine, at Fierbois, and which she perhaps had seen while visiting among the ecclesiastics there, was brought and placed in her hands.

Thus equipped, she put herself at the head of ten thousand troops under the generalship of Dunois; threw herself upon the English who were besieging Orleans; routed them, and in a week, forced them to raise the siege.

Other exploits followed. The presence of the virgin with her consecrated banner, struck a panic into the hearts of her enemies. In three months, Charles

was crowned king at Rheims, the maid of Orleans standing in full armor at his side.

Her promised work was done; Dunois, however, unwilling to lose her influence, urged her to remain with the army, and she did do so, but her victories were over. In an attack on Paris in the early winter of 1429, she was repulsed and wounded. In the spring of the next year she threw herself into Compiegne, then beleaguered by the English; made a sortie, in which she was taken prisoner (May 23, 1430), and was carried to the Duc de Luxembourg's fortress at Beaufort. An attempt to escape by leaping from a dungeon wall was unsuccessful, and she was taken to Rouen. The university of Paris demanded that she should be tried on a charge of sorcery, and solicited letters patent from the king of England, which were reluctantly granted. The Chapter at Rouen were rather favorably disposed toward her. Many of the English in authority were unwilling to proceed to extremities. But the University of Paris prevailed; the examination lasted several months, and resulted in a conviction of sorcery. The papers were sent from Rouen to Paris, and the verdict of the University was unanimous that such acts and sentiments as hers were diabolical, and merited the punishment of fire. Sentence of condemnation was, therefore, read to her publicly on a scaffold by the Bishop of Beauvais, and the alternative offered of submission to the Church, or, the stake. The terrified girl murmured a recantation, put her mark to a confession, and was taken back to prison. Here she heard her "voices" again, her visions returned, and as heretofore stated, faith was broken with her. A huge pile of wood was erected in the market-place at Rouen, and, surrounded by a vast assembly of soldiers and ecclesiastics, Joan of Arc was burned.

The infamy of this transaction lies heavily upon all concerned in it; upon the Burgundians who gave her up; upon the English who allowed her execution; upon the French who did the deed; and the French who would not prevent it; and upon the king who did not avenge her, who waited ten years before he reversed the process by which she was condemned, pronouncing her "a martyr to her religion, her country, and her king."

The character of the "Maid of Orleans" was spotless. She was distinguished for her purity, innocence, and modesty. Her hand never shed blood, and the gentle dignity of her bearing impressed all who knew her.

How a Mouse Built a House.

A few years ago a rich man built a great schoolhouse for girls. He built it only for girls, so their brothers had to stay at home, or go to one of the great schools for boys. But the mice did not care whether they were invited or not, and came in families to the warm, cosy rooms that were built expressly for the girls. They even disputed the ownership with the rightful occupants; and one young lady spent the first night there in deciding which should stay in the room, she or the mice.

One mouse was in need of a house. She was very persevering and smart, and had a good deal of taste, too, and she could not be satisfied with a house made of common materials. She watched her chance when the young lady was away reciting her lessons, and crept carefully into her room, and up to her closet shelf; and there she found what was better for her than a whole forest of black walnut, or a whole quarry of marble. It was the school-girl's Sunday hat—a very palace for Mrs. Mouse. It was Winter time, and the velvet hat had a lining of soft silk, and trimming of beautiful soft feathers. You can imagine the joy with which mother mouse saw this wealth of delicate building stuffs. She went quietly to work to literally turn the hat outside in, for with her little teeth she bit off pieces of feather and bits of velvet, until her house was entirely plain without, but lined and relined within with these tempting furnishings. Like your mother, little child, she was not working for her own comfort, but when her beautiful house was done she tucked into it her six dear little mice, and hoped to bring them up safely in the luxury of feathers and velvets.

When the next Sunday came, the young lady went to her wardrobe for her hat, and found, instead, the house that mother mouse had built.

Elias Howe.

In Cornhill, Boston, some thirty years ago, there was a shop for the manufacture and repair of nautical tools, kept by Ari Davis. He was an ingenious mechanic, had invented some little useful machinery which, at that time, tended to make him quite a noted man.

In the year 1839, two men in Boston, one a mechanic, the other a capitalist, were striving to produce a knitting machine, and in despair over their lack of success, brought the machine to Davis' shop to see if his genius could not suggest some method of improvement on their failure.

"Oh," exclaimed Davis, in his blustering manner, "why do you bother your brains over a knitting machine? Why not make a sewing machine?"

"It can't be done," they replied. "Yes it can," returned Davis, "I can make a sewing machine." "Then you are sure of an independent fortune," was the response.

Right there the conversation and the matter dropped. But among the workmen was a young man from the country, a new hand in the shop, on whom the imposing manner and flashy appearance of the capitalist made a great impression. Up to that time and hour the idea of sewing by machinery had never entered the young man's brain.

This youth was Elias Howe, who was born in 1819, at Spencer, Mass. His father was a farmer and miller, but farm and mill yielded an insufficient income for a man with eight children. When Elias was six years of age, he worked with his brothers and sisters at sticking the wire teeth into strips of leather for "cards" used in the manufacture of cotton. As soon as he was old enough, he assisted on the farm and in the mills, attending the district school through the winter months.

We have thought that he must have got some crude ideas concerning machinery while working in his father's mills; but no event worth recording took place during the first eleven years of his life. He was careless and loved play, like other boys. At the age of eleven he went to live with a farmer in the neighborhood, calculating to remain there until he should be twenty-one, but an inherited lameness rendered his labors on the farm so distressing that he was obliged to return home to work in the mills, where he remained until he was sixteen.

In 1835, his father reluctantly consented for him to go to Lowell. He worked there in a machine shop until the crash of 1837 closed the mills. Adrift without work, he went to Cambridge. He found employment there in a machine shop.

Nathaniel P. Banks—since Speaker of the House of Representatives and Major-General—worked in the same shop and boarded with him. After a few months of work in Cambridge, Elias went back to work in the shop of Ari Davis, Boston.

There was nothing remarkable in young Howe's personal appearance. He was small, with curly hair, and a manner bespeaking his great fondness for joking. In truth, at the age of twenty he was more of a boy than a man.

Steady labor he did not love, and he was not the person to seize an idea with avidity and work it out with zeal. But the conversation in Mr. Davis' shop, concerning the making of a sewing machine, recurred again and again to his mind, and induced a train of questioning.

Why might not machinery be made to do the tiresome work of so many hands? he asked over and over again.

At twenty-one, being still a journeyman machinist, earning nine dollars a week, he married. The increasing family, with the cares incident to support them, soon robbed him of his boyish mien, and made of him a plodding, thoughtful citizen.

Often his day's labor proved so heavy and exhausting that he could not eat, only crawl wearily to bed with the disheartening wish that he might lie there forever.

His wearisome toil and his poverty brought on the "inventor's mania," with the seducing chorus—"independent fortune"—which he had heard four years before in Davis' shop in Boston. Hours and hours, day and night he worked upon—as it proved—a false model. He was trying to form a needle and machine to work it, in a manner similar to hand sewing. This he could not do. Still he whittled away, filling many a basket with chips, after the idea had suggested itself that there might be

another stitch which the machine could take. This was the crisis of the invention. With wood and wire, he labored on, until he convinced himself that he had invented a sewing machine. This was after he had succeeded in getting the shuttle and needle, with an eye near the point, to operate together.

Months of toil and privation followed. He could not settle himself to work at his trade; and yet, how ever could he utilize the power of his genius? To test the worth of his invention there must be a machine made of steel and iron, with the exactness and finish of a clock, and he had no money.

At that critical time there was living at Cambridge a friend and schoolmate of Elias Howe. George Fisher was a coal and wood merchant, and besides had inherited a fortune from a deceased relative.

In 1844, Howe succeeded in convincing Fisher of the feasibility of his invention, and a partnership was formed. The terms of this co-partnership certainly bore down heavily on Fisher, on whom rested all the expense of Howe and his family, besides finding the materials to work with, while the machine was being constructed. In return he was to be proprietor of one-half the patent, if the enterprise should prove successful.

In the garret of George Fisher's house Elias Howe set to work. Only Fisher had faith and hope in the inventor's enterprise, and his kindness was laughed at in company with Howe's visionary conceit. Just the old story, you know, with new characters.

All through the winter of '44 and '45, Howe tirelessly labored on, and his plan was so plain in his brain that he could progress as rapidly as if a model stood before him. In April he sewed a seam on his machine. By the middle of May, 1845, he had completed his work. In July he made upon his machine two suits of clothes—one for Mr. Fisher and one for himself—the sewing of which outlasted the cloth.

Like all great inventors, Mr. Howe found when he had completed his machine his difficulties had just begun. Firstly, the whole army of tailors believed their bankruptcy signed and sealed if the machine should prove a success; and no doubt if they had dreamed that it would be aught else but a failure, the first machine would have been destroyed with violence; but placing his invention in Quincy Hall Clothing Manufactory, he offered to sew seams for any or all the tailors in Boston. For two weeks he sat there, daily sewing for all who came, and the work proved eminently satisfactory. It was proved that the sewing was neater and stronger than hand work, and could be accomplished in less than one-fifth of the time that would be required to accomplish the same amount by hand.

Still not a machine was ordered, not an encouraging word was spoken. One serious drawback to their introduction was their cost, being two hundred and fifty or more dollars each.

Howe's next job was to shut himself in the garret again to construct a model to deposit in the Patent Office. Then, in the spring of '46, Mr. Howe, finding that there was no near prospect of bread and butter in his machine, turned engineer, and "drove" a locomotive daily upon one of the railroads terminating in Boston. But his health compelled him soon to abandon this, and in the fall, with model and papers, the partners started for Washington with the purpose of exhibiting the invention at a Fair. The only result was to amuse a crowd. George Fisher was now quite discouraged. He had expended upon Howe's family and the materials for the machine about two thousand dollars without the remotest probability of any return.

But mothers and inventors do not give up their off-spring thus. America, having rejected the invention, Mr. Howe resolved to offer it to England. In October, 1846, Elias Howe's brother took steerage passage for London, carrying with him a machine. It attracted the attention and approval of a shop-keeper in Cheapside. He made an offer, which eventually proved highly advantageous to Mr. William Thomas, Cheapside, London.

His offer to Amasa Howe was to pay two hundred and fifty pounds sterling for the machine, and the right to use as many more machines as his business required, and a verbal understanding that he would have the machine patented there, and pay so much to Elias for each machine sold. Amasa returned to Cambridge with this offer. There was no choice but to accept. The brothers returned to London, as Mr. Thomas wanted

Elias to make an improvement or addition to the machine for corset-sewing. He bore the expenses until his wishes were accomplished, then he gave Mr. Howe to understand that he was done with him.

Soon after this Elias found himself and family in very straitened circumstances. Of an acquaintance, a coach maker, he hired a small room, borrowed a few tools, and set about making another machine. But seeing that his prospects were growing daily more embarrassing, he resolved to send his family home while he could, and rely on the machine which he was now making to furnish means to get himself home.

After this the inventor was reduced to almost absolute penury, being obliged to pawn some of his clothing to pay the cab fare for his sick wife on her way to the ship.

In a low London garret he cooked his own food, and resolved to pawn his machine as soon as it was finished and return to America. He found a purchaser for this one, but received only a small installment of the pay. To procure means to return home, he pawned his first machine and his letters patent. His baggage he drew in a hand-cart to the ship to save expense. He landed in New York after two years' absence with one small silver piece in his pocket. He sought and found employment in the machine shops. He heard that his wife was very low with consumption, but he had not the means to reach Cambridge. In a few days, however, his father sent him the money, by which he was enabled to reach his wife just as she died.

His gay and lively manner was now wholly subdued. He was extremely cast down and sorrowful, but he was among friends who administered to his and his children's needs. He again went to work at his trade.

But Howe was surprised on his return from London to find that the sewing-machine had become celebrated. Ingenious mechanics had invented machines, but more who had seen his had improved upon his patent. Examining the machines in use, he was startled and angered to find the infringements that had been made upon his rights.

He would not submit to this. He sent to London by Anson Burlingame to redeem his machine and letters, and then he sent public notice to the trespassers, warning them of their unlawful method of manufacturing machines, and offering to sell them licenses if they wished to continue. They stood out against his just demands, and he proposed to commence a suit in law.

A man was found to buy out George Fisher's claim, and the case came into the courts where, as usual in such cases, it promised to drag interminably.

Howe persevered, however, and in 1850 constructed fourteen sewing-machines, which he exhibited, worked and sold as opportunity offered. By-and-by the gracious public learned that the courts had decided that Elias Howe was the real first inventor of the sewing-machine, although the infringers had attempted to exhume a previous inventor who had tried to bring into use some of Howe's later ideas; but this attempt proved an utter failure. Howe came off victorious, but yet, so slight was the hold that the sewing-machine had upon public favor, Elias was able—embarrassed as he was with debts from law suits, and so forth—on the death of his partner to buy out his share, and so became sole possessor of the patent just as it was about to turn him a princely fortune.

Mr. Howe's income soon went up to tens of thousands a year from his machine business; and the sewing-machine war—the leading parties of which were Singer & Co., Wheeler & Wilson, and Grover & Baker, which at first seemed to denote extermination of the weaker by the stronger—finally culminated in the "combination" which has had so much, no doubt, to do with keeping machines up to their present high price, from which Mr. Howe received an immense income from the slight percentage given him on each machine made and sold. What wonders of work are performed by these unpretentious little machines.

Think of our army in the last war, with their numberless garments, tents, haversacks, cartridge boxes, shoes, blankets, sails, and so forth, how much the invention of Elias Howe added to their comfort.

One day during the war, at three o'clock in the afternoon, an order from the War Department reached New York by telegraph for fifty thousand sand bags, such as are used in field works. By two o'clock the next afternoon the bags were made, packed, shipped, and started for the South.

Mr. Howe exhibited his machine at the Paris Exposition of 1867, where, for its evident superiority over all others, it was awarded the highest premium (a gold medal), and Elias Howe, Jr., its inventor and manufacturer, was decorated by the Emperor of France with the "Cross of the Legion of Honor," thus receiving the highest award ever given to any exhibitor at any exhibition for any articles whatever exhibited.

After the close of the French Exhibition, Mr. Howe returned to his native land, where a few months subsequently he died, passing away at the zenith of his triumph, as one of the most remarkable and successful inventors of the age. He, however, could never have fully realized the magnitude of the work which he had accomplished, nor could he have foreseen the enormous proportions to which the company he organized was destined to attain. No adequate estimate can be made of the vast importance of the Sewing Machine to the world as a labor-saving invention, though some idea of the magnitude of the business may be gained from the fact that there are engaged in the manufacture of sewing machines no less than thirty-two different companies, having an aggregate capital invested of not less than \$30,000,000, and producing over 400,000 machines per annum. More than 12,000 men are employed in their factories, not to mention the immense army engaged in the sale of machines.

Among all these, none is more prominent than the Howe Machine Company. Since its organization in 1865 it has manufactured and sold nearly one million sewing machines, a number which required more than twenty years for the next largest company to produce. Taking the number of machines manufactured by the different companies since their organization, the annual average of the Howe Machine Co. is nearly double that of any other. So great has been the demand for its machines, that it has been obliged to increase its facilities from time to time, until its works now cover the enormous area of 513,298 square feet, and are capable of producing 1,000 machines per day, giving employment to nearly 4,000 men. It has branch offices in all the principal cities of the world, and sub-agencies for the sale of its machines are to be found in nearly every village.

The infinite variety of work to which their machines are adapted, would have been deemed incredible even ten years ago. It embraces the sewing of every variety of fabric. Various styles of machines are manufactured, but the parts of each are exactly alike, varying only in ornamentation, according to the style of the machine, and they range in value from \$60 to \$250.

The Centennial Exhibition has awarded the Howe Machine a medal and diploma of the highest merit.

As we view these mighty inventions and discoveries, we are led to ask the simple question: What may we next expect as the result of infinite mind working through the agency of finite man?

Daniel Webster.

Daniel was the youngest son of Judge Webster and his second wife. He was born at Salisbury, New Hampshire, January 18th, 1782. He was a delicate, sickly boy, and his father, early perceiving that his son was likely to be physically unfitted for severe bodily labor, therefore sought to give him an education that would allow of his entering some of the professions.

The schools in that part of New Hampshire at that time were poor, yet at one of these young Daniel received the rudiments of his education. He was noted as a correct and fluent reader at an early age, otherwise he exhibited no unusual talent. He delighted in the boyish pastimes of fishing, hunting and playing. He was obliged to assist in running his father's saw-mill, which he has since affirmed, was the best school that he ever attended. He would take his book with him, and when the saw had been set and the water turned on, he was sure of fifteen minutes of quiet before the log would need his attention, and these intervals were given to his book.

They possessed but few volumes; these were read and re-read until they were learned by heart. There was also a small public library from which he derived considerable benefit.

Mr. Webster intended making a school-teacher of Daniel, and finding that he had advanced in his studies beyond the scope of the district school, he was sent to the Academy at Exeter. Here he made rapid progress,

but could not overcome his natural timidity.

At the end of the first month the tutor made this remark: "Webster, you will pass into the other room and join a higher class. Boys," he added, to young Daniel's classmates, "bid Webster adieu, you will never see him again."

Judge Webster, not being able to give his son a thorough course at Exeter, Daniel, ere long, was called home and placed in the family of Rev. Samuel Wood, of the neighboring town of Boscawen. The whole charge for board and tuition was one dollar a week.

Daniel's father was so well pleased with his progress at Exeter, that he determined to tax every energy in order to send the young fellow to college.

While on one of their rides to Boscawen, his father made known his intentions. "I remember," says Webster, in after years, "the very hill which we were ascending, through deep snow, in a New England sleigh, when my father told me what he proposed doing. I could not speak. How could he, I thought, with so large a family and such a small income, think of incurring so great an expense for me. A warm glow ran through my pulses, and I leaned my head upon my father's shoulder, and wept with deep emotion."

For a year and a half Daniel studied manfully under Mr. Wood's supervision, and then, in the autumn of 1787, he entered the Freshman Class of Dartmouth College, engaging to make up his deficiency by extra study. He spent four years—a faithful student—in college. He was fond of Latin, and learned it so well that in after years he read the Roman authors with pleasure. Greek and mathematics he cared nothing about; but he was an indefatigable reader, and it was from the college library, rather than from his text books, that he derived the most of his learning. History and English literature were his favorite reading through life. Biography, also, he particularly admired. While at Dartmouth, much of his timidity disappeared, so that he was able to take a part in the Society debates. Here he won distinction, and when but eighteen years of age he delivered a Fourth of July oration, which was spoken of as an admirable effort for so young a man.

During college vacations, Daniel taught school to lighten the load of expense resting upon his father. His earnings, in part, were devoted to another purpose. He was deeply attached to his brother Ezekiel, and he was ambitious that he, too, should enter upon a collegiate course.

It was with some difficulty that Daniel won his father's consent to this plan. Toil and hardships had brought infirmities upon the Judge, and he also was much in debt, and depending mainly upon his salary of four hundred a year as Judge of the Court of Common Pleas, for the support of his remaining family. His other sons were married, and had families of their own, and Mr. Webster was almost involuntarily leaning upon Ezekiel as the staff of his declining years, and for the support of himself and wife and two unmarried daughters.

But, without doubt, Daniel made an irresistible plea, for after a whole night's conversation with his brother, the cordial assent was gained.

The Judge lived only for his children, and was willing to sacrifice his property for their benefit. But there were mother and sisters. They, too, must be consulted.

Said the generous, trusting mother: "I have lived long enough in this world, and have been happy in my children. If, therefore, Daniel and Ezekiel will promise me to care for my old age, I will gladly consent to the sale of all our property, that they may enjoy what remains after the debt has been paid."

Here the whole family was affected to tears; but the full sacrifice was not demanded, because a part of Daniel's earnings helped defray the expenses of his brother's studies while preparing for college. After leaving college, Daniel devoted himself to the study of the law until his father's waning health showed him the necessity of obtaining paying employment to aid in the support of the family. He sought for and obtained the place of Principal of the Academy at Freyburg, Maine, at a salary of three hundred and fifty dollars a year. Out of this he must pay two dollars a week for board. In order to increase his slender income he devoted his evenings to copying deeds—a labor which he detested—and earned money enough, in this way, to allow of the greater part of his salary to go to pay Ezekiel's expenses.

Daniel was poor. His clothing was threadbare and out at the heels, but with keen perceptions as to the

ludicrous, even in his own poverty-stricken affairs, he never lost the rare and vivacious manner so peculiar to him. After closing his engagement at Freyburg, he went back to his legal studies, but his little hoard of money was soon spent, and he went to Boston to try and find employment. He had but one acquaintance in that town, Dr. Cyrus Perkins, then a struggling young physician, who had opened a private school to enable him to live while he was establishing himself in his profession. When Dr. Perkins thought himself in good enough practice to dispense with his school-teaching, Daniel hastened home to secure Ezekiel's services for the vacant situation. The Faculty at Dartmouth allowed him to assume the charge without sundering his connection with the college, on condition of his keeping up with his class by private study, a condition which he faithfully fulfilled.

Ezekiel acquitted himself so well in the avocation, that he not only supported himself, but was able to aid Daniel to come back to finish his legal studies.

When Daniel, at his brother's summons, left home to return to Boston to go on with his schooling, he was almost penniless, and had no acquaintances in the town but the doctor and his brother. He hardly knew what to do. He could not remain idle.

To Christopher Gore, an eminent lawyer of Massachusetts—afterwards Governor of the State and U. S. Senator—who had just returned to Boston from London, where he had resided as U. S. Agent under Jay's Treaty, the young man applied for the situation of law-student and clerk. Gore was settling down to practice his profession, when, as Webster narrates, a young man as little known to the great lawyer as Daniel himself, undertook the task of introduction. Webster spoke of his shocking embarrassment, as he briefly but frankly explained his circumstances, after apologizing for the unwarrantable intrusion upon a stranger. He spoke of his wishes, hopes and ambitions, offering to send to New Hampshire for letters to confirm his statements. The great lawyer heard him through with good nature, questioned and talked with him for half an hour, and finished by taking him at his word, and engaged him on the spot.

He stayed and studied and worked for Mr. Gore some nine months, attending the courts, studying chiefly in Common Law, but tracing it back to its sources in the old Latin and Norman-French. After leaving Mr. Gore, or rather, just before completing his legal studies, he was offered the clerkship in his father's court with a good salary, but his patron set his face steadily against his accepting it, and urged him to persevere and finish the course at any sacrifice. Daniel yielded to Mr. Gore's argument, and not long after was admitted to the bar in the Court of Common Pleas in Boston. His patron prophesied future eminence for the young aspirant of legal fame, and his predictions proved correct.

The next year after commencing practice, he was admitted to the Bar of the Superior Court of New Hampshire.

Then his father died, cutting the bonds, as it were, that held young Webster to his native town, and he resigned his growing practice there to Ezekiel, while he removed to Portsmouth. Here he came in contact with the ablest men of the age, men who had arrived to great eminence in their profession, yet who recognized the talent in Daniel Webster that placed him as a worthy co-laborer among them. It was here while contending with formidable rivals, that Webster developed the prowess of a mighty intellect.

Mr. Webster, in 1808, married Grace Fletcher. She bore him three sons and a daughter. But one of these, Fletcher Webster, survived him, and he fell at the head of his regiment at the second battle of Bull Run.

In 1812, Webster was elected to the House of Representatives. This Congress is conspicuous in our history for the number of great men who served in the Lower House—Clay, Calhoun, Lowndes, Pickens, Gaston and Forsyth. Among these giants, Mr. Webster sat as an equal. When he delivered his first speech in the House, his hearers were taken by storm. Competent judges foretold that he would be one of the most prominent statesmen in America. After this he was elected to Congress.

During the recesses of Congress, he devoted himself to his profession, in the practice of which he was already excelling, and in which he afterwards towered pre-eminent over his competitors.

As an orator he stands almost unrivalled. His massive

brain, unaided by influence or influential friends, his massive intellect, aided only by indefatigable perseverance, raised him to that lordly eminence side by side with America's wonderfully gifted sons.

Allow us to quote, in connection with this biography, a part of one of Daniel Webster's speeches. He said: "I have not allowed myself to look beyond the Union to see what may be hidden in the dark recesses behind. I have not accustomed myself to hang over the precipice of *disunion*, to see whether I can fathom the abyss below, nor could I regard him as a safe counsellor who might be considering how tolerable might be the condition of the people after the Union was broken up or destroyed. While the Union lasts, we have high, exciting, gratifying prospects spread out before us and our children. Beyond that, I seek not to lift the veil. God grant that in my day, at least, that curtain may never rise. When my eyes shall be turned to behold, for the last time, the sun in Heaven, may I not see him shining on the broken and dishonored fragments of a once glorious Union; on States dissevered, discordant and belligerent; on a land rent with civil feuds, and drenched, it may be, with fraternal blood. Oh, let their last glance rather behold the gorgeous ensign of the Republic, now known and honored throughout the earth, without one stripe erased, or one single star obscured, its ample folds drifting upon the wind, wearing the dear old motto, 'Liberty and Union, now and forever, one and inseparable.'"

This outburst of eloquence on the part of Webster, completely silenced those who were opposed to these sentiments.

Daniel Webster's career as a statesman was long and brilliant. Who would have dared to foretell this in his obscure and impoverished boyhood? Verily, what great results may follow from small beginnings. Mr. Webster's health had been failing for some time, when he met with a serious accident that caused a fatal termination to his illness. He was thrown from a carriage near Marshfield, and after that he failed rapidly, dying October 24th, 1852, aged seventy years.

The President of the United States was anxious to give him a public burial, but Mr. Webster instructed otherwise. He wished for no ostentatious display, and his wishes were heeded. On Friday, October 29th, the remains of the dead man were laid in an open coffin under the old elm tree, the shade of whose branches had been so grateful to him in life; "and around him," says Mr. Hilliard, "was the glorious autumn day landscape that he loved, and above him was nothing but the wide blue dome of the heavens. The sunshine fell upon the dead face, and the wind blew over and dallied with his hair. He was an ardent lover of nature, and the scene suggested a child gathered into the maternal arms and resting on the mother's lap."

A vast crowd from all parts of the Union congregated to take part in the last ceremonies, and long processions passed by to look their last on the face which New England loved so well.

In the crowd walked a plain, unknown man, dusty and in humble garb, who, as he looked upon the calm, grand face of the still sleeper, unconsciously spoke words that interpreted the feelings of the assembled multitude. Said he: "Daniel Webster, the world without you will seem lonesome."

Six sturdy New England farmers, when the funeral services were over, lifted the coffin to their shoulders and thus bore it to the grave, where—

"Beyond the rock-waste and the river—

Beyond the Ever and the Never ;"

the great statesman's body was laid down to its eternal rest.

German Students.

It will interest our readers to learn something about the manners and customs of the Heidelberg students. They are divided into two classes; those who come for real study, remain in comparative obscurity, and those who do not work, the "corps students." These latter make all the life and gaiety of this otherwise quiet town. Study is to most of them a secondary consideration, and to some no consideration at all. There are five corps—named after the districts from which the members originally came: Westphalia, Rheinland, Swabia, &c., and each corps has its particular color, of which the students' caps are made. These caps are very pretty—black vel-

vet embroidered in gold, blue with silver, green and silver, white velvet and black, and various other styles.

The Heidelberg corps students are much condemned by foreigners, on account of their dueling propensities. One sees the students going about with patches and scars on their faces in all directions; two or three have the tips of their noses taken clean off. These wounds are the result of the duels, or, more properly, fencing matches. They fence with fine, sharp swords, having the eyes and vital parts protected, so that no serious injury can ensue, though they do receive terrible cuts occasionally. The scars remain, in many instances, for a lifetime; but the combatants bear them proudly, even if they are inflicted unnecessarily.

The duels are fought usually without provocation between students of different corps, though sometimes they are "affairs of honor."

The writer once witnessed a most melancholy and impressive sight—the funeral of a blue-cap student who was drowned in the Neckar a short time before. At nightfall, a long procession of all the students, in dress uniform, and each bearing a torch, wound slowly through the town. A band preceded them, playing a funeral march. Next followed the funeral-car, a mass of black velvet and flowers, on which reposed the coffin, with the sword and cap, "useless forever now," crossed upon it. It was indeed a touching sight to see the faithful dog of the dead student following close behind the hearse, with an anxious, searching look in its intelligent eyes. The different corps came next, in their uniform of embroidered cap, black dress-coat, white buckskin knee-breeches, top-boots, gauntlets to the elbow, sashes of the corps colors over the shoulder, and a sword. Every banner was draped in crape, and each student wore a mourning badge. The effect of the long procession winding through the narrow streets, lighting brilliantly the sad old houses in the torchlight, was indescribably lovely. The tolling of church bells and booming of cannon, continued till the services at the cemetery were concluded. Then the procession returned to a square in the town, formed in one great circle, and sang the grand college song, "Godeamus," after which, at a given signal, every torch was flung high into the air, and then left to smoulder and die out on the ground. The students then dispersed to their various assembly rooms, to drown their grief in copious draughts of beer.

They consume an enormous quantity of this delicate beverage—though it is a rare sight to see a student intoxicated. They are extremely gentlemanly and polished in manner, and faultless in dress, although they spend the best part of each night in a grand carouse. They meet different nights in the week for what is called in German, a "Kneipe." On these occasions it is customary to drink from ten to fifteen glasses of beer each; large beer-mugs quite full. They vary the evening's entertainment with singing, having usually a band of musicians present for accompaniment, smoking and card-playing. They have a variety of ways in which they drink toasts; for instance, when they desire to drink to the health of certain fair ones, "absent, but ever dear," the glasses are clinked together, and then thrown out of the windows, where they are smashed to atoms in the court below, to avoid desecration by future use.

Every corps has half-a-dozen or more dogs, which are common property—great, ugly brutes, but supposed to be very valuable animals. These quadrupeds are taught to drink beer at an early age, and are as inordinately fond of it as their masters.

The writer asked an old professor if the corps-students ever studied. He answered: Oh, they have so much to do, fencing, dueling, and attending Kneipe, that there is really no time for study!"

He was a corps-student himself, in his youth, and spoke from experience, and, no doubt, truthfully.

No student remains in a corps more than a year or two; then they go to the universities, and make up for lost time by hard study, and become eventually brilliant men. They look back on the time spent in Heidelberg as a season of delightful, exciting idleness; and, in long years after, there is a green spot in their hearts for the happy days spent among their colleagues in the corps. To some, their system of beer-drinking, dueling, and idling would prove hurtful; but most of the finely-educated Germans were corps-students in their youth. Bismarck, for instance, bears still a scar received in dueling as they fight to-day.

The Grave of Charlotte Cushman.

Seldom does a year pass during which some illustrious name is not added to the long list of those who are sleeping their last sleep in the cemetery of Mount Auburn. It was in 1876 that the grass grew for the first time above the grave of Charlotte Cushman. In the autumn of 1874 it was that she, with a friend, rode out there for the purpose of selecting a lot, requesting to be shown one where there was "an unobstructed view of Boston." She was conducted to one a long way from the entrance, away over toward the beautiful country which lies fair and green and peaceful beyond the inclosure of this city of the dead, to reach which she had to pass the graves of many of her old friends, of whom she spoke tenderly. When she arrived at the small triangular lot designated, she stopped, satisfied, and gazing yearningly at the distant roofs and spires, she said, "See! yonder lies dear old Boston," and expressed her great delight in the place she had chosen, saying, "This is a delightful spot;" and returning to it for a second visit some weeks later, she seemed happy in the certainty that her last resting place was to be in sight of the city of her birth.

To that "delightful spot," in a little more than a year afterward, she was borne, from the very Stone Chapel, the old King's Chapel, in which she had been wont to worship, before whose altar her lifeless body had rested for a few hours while the funeral honors were being paid, while friends and strangers and the girls of the Cushman School heaped flowers—laurel and ivy, pond lilies, forget-me-nots, and immortelles—upon the casket where she lay, with a lily-of-the-valley in her hand, while along the arches of the venerable church thrilled the solemn music of chant and hymn.

Not many weeks after her death, while rambling about Mount Auburn, we came upon her solitary grave. The prospect was enchanting. Turning a little to the right, we saw scattered farm-houses, villages, wooded knolls, and green fields, making a lovely landscape, outlined by gentle hills, and in the near valley a river and meadows, willow-skirted. In front, in full view, perhaps four miles away, was "dear old Boston," the stately pile of buildings crowned by the burnished dome of the State-house, under whose shadow was the King's Chapel, and beyond it the old historic North Church, close by her birth-place, whose chimes had been among the most familiar sounds of her childhood.

Her grave, as yet unsodded, was in the centre of the three-cornered lot on the fair slope looking toward the sunrise; and so, with her face toward the city she loved, and her feet to the east, she awaits the resurrection morning.

She is in the neighborhood of many whom she knew in life, like herself distinguished. The grave of Everett is not far off; that of Pierpont is on the rising ground just above, marked by a temple-shaped monument of gray stone with sunken arches; and a little farther on is the plain, open lot where the Sumner household are gathered, save those who went down into the sea—father, mother, and children under the small white stones in a range at the back, the great Senator in front, alone, as was his life. It is simply a level swarded space, with no green thing growing out the grass, not a flower or vine, and not a tree except one tall, gaunt oak, blasted and storm-scathed. On that April evening its aspect was most forlorn; and, to add pathos to the scene, a little hanging nest still clung to the outermost twig, showing that a bird had once made its home and reared its brood there, and given the cheerfulness of its presence and song to the place.

Not far away is the block of granite from over the seas which indicates the burial-place of Agassiz. A boulder taken from near the lower glacier of the Aar in Switzerland, and set up in its native roughness, except that a space was made smooth to receive the inscription, which simply records his time and place of birth and death. It is scarcely more than four feet in height, an unpretending stone, dark, with gray and greenish stains, and decorated by a vine which has been trained over it. The centre of the lot is occupied by a rustic cross set in a heap of rocks like a cairn. A photograph of this fitting monument hangs on the walls of the Agassiz Museum, where the newly executed and life-like bust of the "teacher," as he liked to call himself, is a constant reminder of his genial presence.

In a neighboring lot are members of Margaret Fuller's family; one stone is to the memory of Arthur, chaplain of one of the Massachusetts regiments, who, when there was a call for volunteers for Fredericksburg, was among the first to go, and was shot while on the bridge of boats—fearless in arms as he had been in reform. No one who ever heard this brave preacher in his pulpit could forget him—strong-featured and fair-haired like his sister, with the same prominent forehead, and something of her magnetic power in manner and utterance. His likeness is cut in the marble head-stone, and his own words are these, "I must do something for my country." Another stone stands for Margaret's child, the beautiful boy who was washed ashore after the wreck, and buried by the sailors in a little grave which they hollowed out for him among the sand heaps on the beach, and afterwards brought away by her parents to Mount Auburn—all that the sea gave back to remember Margaret Fuller by. The inscription is followed by this unusual bit of poetry:

"Though here the offspring that we loved
Unfolded but the early shoot,
And formed this little tender root
To be transplanted and removed,
Yet 'twas a signal favor given
Above the parents' paltry worth,
To be a nursery on earth
For the eternal seed of heaven."

In memorial of herself and Ossoli, there is a marble slab with appropriate emblems for each—a sword, with oak leaves for the one; a book, with flowers and olive leaves, for the other. The stone is arched and surmounted with a cross; in the centre of the arch is sculptured her head in profile, with the strong intellectual characteristics so familiar in her portraits, but in general effect far from pleasing.

Returning in the twilight, we passed the sombre inclosure where N. P. Willis is buried; the exquisite cross ornamented with ferns which bears the name of his famous sister; the monument, with the fit design of a broken lyre and laurel crown, in memory of Frances Sargent Osgood; the simple drab-colored stone where, beside his wife and soldier son, lies Rufus Choate; the long ridge where the wife of Longfellow sleeps; and the graves of Channing and Spurzheim.

A Man of the World.

BY ROSA V. RALSTON.

He is commonly recognized as a man of reckless demeanor, indifference as to moral propensities, and much outward show of a lack of humanity. On account of his habitual contact with the world at large, he has a more thorough insight into human nature than one who confines himself to a single sphere. He is prepared for any changes and schisms that may take place in society, and reads with like complacency the newspaper account of the shocking suicide of John Smith, the last social scandal, or the unexpected bankruptcy of the most prominent mercantile firm of the metropolis. He makes no religious pretensions, but is not infrequently found to be more charitable than those who do. He is not of the Pharisee, stand-aside-that-my-robes-may-not-be-polluted kind. He is mixed with all classes, and understands how to excuse their foibles. All his deeds of charity are done in the dark, and he is more disconcerted at being charged with secret benevolence than open debauchery. He takes a more extended view of the world, has no narrow, contracted ideas, and is by nature more generously disposed towards mankind than he who associates with only a "select few." He is not a miser, but is noted for his liberality toward his friends. He is far more likely to drain his purse for the erection of a church edifice or orphans' home than many who parade their religion in well-kept pews on the Sabbath. Indeed, the reckless manner in which he spends his money may be noted as one of his prime faults. He is not remarkable for any very strong attachments; yet he cares for all his friends in a disinterested way, owing, no doubt, to the cosmopolitan principle of his nature. He regards the world as a world, and not as individuals. With all his faults he is infinitely more to be preferred than the habitual recluse. Of the two he is likely to make a kinder husband, a more indulgent parent, a more faithful friend, and a more reliable politician than the latter.



TO A PORTRAIT OF A LADY PAINTING,

What art thou painting, lady-fair?
A forest glade—a leafy lair
Into which the shy little sunbeams pass,
To dance with the fairies over the grass?

Or a "love of a cottage" down in a dell,
Where "fancy pictures" Love might dwell,
Smoother in roses and covered with thatch,
After the fun of a runaway match?

Or is it the face of a girlish friend,
Whose thoughts and feelings joyously blend
With the thoughts and feelings so maidenly wise,
That shine in the depths of your own bright eyes?

Or is it some ruined old castle's tower—
Some grim memento of lawless power
And of days when love was mingled with feud,
When maidens (like you) were roughly wooed?

Or is it, perchance a dear little child
Crowned with a chaplet of cowslips wild,
With innocent joy in its angel face
At the sight of its own sweet childish grace?

Or is it (forgive me) one dearer still,
To whom thou hast promised thy clear "I will"?
Aye, *that* is the picture that pleaseth thee best;
And he? Oh he is simply blest!

W. A. GIBBS.

Charles Goodyear and the Manufacture of India Rubber.

One day in the year 1833 a man by the name of Charles Goodyear, of the firm of A. Goodyear & Sons, hardware merchants in Philadelphia, chanced to have business which required his presence in the city of New York for several days. While there he happened to pass the store of the Roxbury India Rubber Company. He had read much of the utility of the then recently invented India rubber life-preservers, and his curiosity being aroused he entered the store, and, after a short talk, purchased a life-preserver and carried it with him to Philadelphia. Soon after his return he failed in business and became heavily involved in debt.

While examining the life-preserver, several months afterward, an improvement in the manner of inflating it occurred to him, and he hastened to New York for the

purpose of laying it before the agent of whom he had purchased, with a view of selling his right to the improvement, and thus hoping to realize a sum which would be sufficient to pay his debts and set him on his feet once more.

The agent, however, had a sorry tale to tell him. The first pair of India Rubber shoes ever seen in this country were brought here from South America in 1820. Until 1823 they were handed about merely as a curiosity, when a shipment of five hundred pairs, soon followed by another of five thousand pairs was made.

These shoes at once sold for a very high price, not less than sixteen dollars per pair. This price, together with the wonderful cheapness of the material of which they were made, had the effect of creating, as it were, an India rubber mania, similar to the petroleum mania which occurred some thirty years later, and by which so many were ruined. One of the most important results of the mania was the formation of the Roxbury India Rubber Company, before mentioned, with a capital of three hundred thousand dollars. But they encountered new and tremendous difficulties, for it was found that the shoes would not stand the climate of our Northern winters; an exposure to a cold at which water would congeal would render them as hard and as brittle as glass, while a temperature of one hundred degrees would convert them into a mass of sticky gum. In short, the agent said that unless some way of remedying these two evils was found, the Roxbury Company, as well as all other companies of the same kind would soon become bankrupt.

This catastrophe did occur a short time after this conversation, to the ruin of hundreds of prominent business men in New York and elsewhere, and with it died out all interest in the manufacture and utility of India rubber, except in the mind of one single individual, and that individual was Charles Goodyear, bankrupt iron merchant, and a native of Massachusetts.

On his return to Philadelphia, Mr. Goodyear began his experiments. He purchased a few pounds of India rubber. He melted it, pounded it, rolled it, kneaded it, manipulated it in every manner, but all to no purpose.

He read about it; he talked of it with professors and physicians and other learned men; he pondered upon it by day; he dreamed of it by night, but without success. He mixed it with magnesia, turpentine, alcohol, and tried every way imaginable to gain his object, but the substance presented the same difficulties as before. Once he thought he had succeeded by mixing quick lime with the gum. He made a few specimens of cloth, which presented an elegant appearance. But he soon learned, to his dismay, that the weakest acid, such as orange juice, dropped upon the cloth, at once changed it to its original condition. One morning as he was going to his shop, he met an Irishman, in his employ, who was highly elated, having, as he thought, discovered the process so much sought for. He had on a pair of pants which he had dipped in a barrel of gum. They were nicely covered, as with a varnish, and for a few moments Mr. Goodyear thought that perhaps Pat had blundered into the secret. The man sat down on a stool to his work, and in a few moments, on attempting to rise, found himself glued to his seat, with his legs stuck tightly together. He had to be cut out of his pants, amid the laughter of the by-standers.

Thus Charles Goodyear struggled on, sometimes in a debtor's prison, always without provisions for a week ahead, for five years. Then it was that he made the simple discovery which has rendered India rubber so useful to the world. It was as follows: Take a piece of common sticky gum, sprinkle a little sulphur on it, put it in an oven heated to a temperature of two hundred and seventy degrees, and bake it for a short time. It comes out retaining all its good qualities, and having wholly lost its liability to harden in cold or melt in warm weather. He found, by subsequent experiments, that by varying the quantity of heat he could make it as hard as ivory or as flexible as whale-bone.

After this discovery the interest in the manufacture of India rubber goods revived, and the business has now swelled to one of immense magnitude. For instance, a single firm in New York, engaged in the manufacture of rubber belting, annually sells two million dollars' worth of belts. During the late Civil War more than four million India rubber blankets were supplied to the soldiers of both armies.

Patrick Henry.

During this Centennial year our thoughts naturally and rightfully go back along the course of the young republic, and with veneration and love we pause as we hear the names of those heroes who came to the front when the times "tried men's souls." How strong in the cause of justice they were! What lovers of liberty! and the beautiful and useful manufactures, inventions and ornaments which we are now exhibiting to other nationalities, were "bought with a price." The heroes' ashes rest in the bosom of earth to-day, but fresh memories are revived in the hearts that are throbbing throughout the length and breadth of our glorious land. It is as if the dead arose and walked in our midst at this time, so freshly do their deeds pass through our minds.

Let us speak of Patrick Henry, a name permanently enrolled on the scroll of freedom with the scores of other brave men who fought for us the privileges of to-day.

He was the second son of his parents, being born in Hanover County, Virginia. His family were in easy circumstances and of good character. As a boy at school he learned to read and write, and studied arithmetic. At the age of ten he was taken home, his father having opened a school in his own house. As a scholar he was rather indolent, lacking the energy of application that makes a successful student. It must be confessed that he played the truant at school, and his father was not of the temperament to deal harshly with him. Patrick lacked the brusque, or boisterous manner of youth. When in company he sat silent and thoughtful. No smile of his answered the merry song or jest, and often after the party was broken up his parents would question him as to what had been passing. He could not detail the conversation, but with the strictest fidelity he could outline the character of each person. This power to read character, to feel as it were the emotions of others, to describe their sensations, seemed a strange, inherited, intuitive knowledge, and it doubtless gave him that power over human hearts and passions so strongly demonstrated in his after life.

This peculiarity of disposition was all that distinguished him from his companions, as he was careless in habits and awkward in manners. Being one of a large family, at the age of fifteen he was set aloft in the world to earn his own living. His father obtained him a clerk's situation in a country store; afterwards, when he had obtained sufficient experience, he furnished Patrick and his other son William, a small stock of goods to start in business on their own responsibility; but the enterprise was not prosperous—for the business was disagreeable to both, besides Patrick's good nature allowed the credit system too much sway, and one can easily judge that a failure ensued. While following the avocation of amateur merchant, his only pastime was to sit a little back of the company that gathers about such places, and while they talked and laughed in utmost freedom, he read both their minds and motives of action, with an accuracy almost more than mortal wisdom gives. But, by-and-by, when matters became disastrous, Patrick took upon himself the settling up of the shattered business; and then, undaunted by his hard experience, at the early age of eighteen he married a farmer's daughter; but farming was not his forte, and failure met him there, as it did again when he once more returned into trade. During this second period of mercantile life, he devoted more of his time to study than to business. He took up geography and mastered it. Works of history he was deeply interested in. His powerful memory helped him as nothing else could do.

Just when he had closed up his second store, Patrick made the acquaintance of Thomas Jefferson, then a youth of seventeen, on his way to the William and Mary College. Jefferson speaks of him as being rather coarse in manner, with a passion for music, dancing and gay humor; the latter amiable characteristic winning him very many pleasant friends. As a last resource for his talents, Mr. Henry began studying law; but he met with little encouragement from his friends, who imagined that he lacked the perseverance requisite to success in this calling. But as if at last he had found the right road, he progressed onward with zeal, if with but little success. For some two or three years he and his family were in abject poverty, but he retained a marvellous degree his serene and cheerful temper

Away back in that remote period the lawful currency of Virginia was tobacco. This legal tender fluctuated more from year to year than our greenbacks and coupons; and the payments of debts in this way were burdensome in the extreme.

The clergymen of the Established Church had their salary fixed in so many pounds of tobacco, and a movement being on foot to have taxes and public dues paid in money at a great discount, and the clergy having accumulated large amounts of tobacco, on which they would meet a great loss, a strife began immediately and the case was carried to law.

During the ups and downs of vetoes and appeals, the clergy gained some points and were feeling assured of success, when Patrick Henry, who had consented to make a plea for the people, for the first time took his stand in the court-house as an active member of the bar. Some twenty clergymen, the learned men of the colony, with the austere dignity of fierce critics, were arrayed before him, while the court-room was crowded to suffocation, and masses were without unable to effect an entrance.

Mr. Lyons, advocate for the clergy, who were determined to have full price for their hoarded tobacco in spite of the trouble that it would give the poor tax payers, wound up his plea with a brilliant eulogium on the ministerial benevolence of his clients.

Then Patrick Henry arose, nervous and awkward—his tongue tripping up on the opening sentences, while an ominous silence fell upon the assembly; and the clergy exchanged insinuating, if not insulting smiles, and the people shrank from beholding the mortifying failure of their champion.

But immediately a marvellous change came over the young advocate. He stood erect with dilating nostrils, flashing eyes and commanding mien. The stammering tongue was loosed, and the startled audience were amazed at the graceful gesture, clear, steady and ringing tones issuing the startling sentence and eloquent argument. He knew the case was against him, but he proved the justice of the law; showing that a good King cares for his people something as a father feels for his children; that when he sought to annul good and just laws he became a tyrant and forfeited the claim of obedience from his subjects.

A voice cried out, "treason," but its further utterance was hissed down; and, says Mr. Wirt, "attracted by some gesture, struck by some majestic attitude, enchained by his lightening and darkening eyes, and the rapid and varied intonations of his voice, in every part of the house, on the benches, in the windows, bent and swayed the excited and enraptured multitude. The sneering faces first took on an expression of surprise, then of amazement, while the clergy precipitately left the assembly, and Mr. Henry's father made no effort to restrain the tears that rushed over his face."

This was the commencement of Patrick Henry's career. The people were proud of him, but the nobility coldly viewed him as their enemy. Neither vain of applause nor dismayed by censure, this man held supreme command of his own temper and manners, and after his fame had filled two continents, simple and natural, he trod kindly on a level with the humblest man in the colonies.

Unfortunately, our space will not permit us to follow step by step with this brilliant genius; but we take up his life again near the time when the war of the Revolution was closing around the infant nation. The Stamp Act was agitating the country to its heart's core, when Henry found himself in an Assembly of aristocrats, whose aim was to keep the poorer class of people in a servile state, while a distinct line, or class of nobility was to be maintained. This Assembly was composed of the most brilliant men of the times, but with them a mind like Patrick Henry's could feel no sympathy. The gentry were embarrassed by debts, and they had met to devise some loan-measures, which Henry at a glance saw was simply to extricate themselves, while it would hopelessly embarrass the common people—the bone and muscle of the colonies.

He brought his mighty and eloquent tongue to bear against the proposed measures, and he defeated them, to the chagrin and abiding hatred of the nobility. They took a petty revenge by ridiculing the plain person and inelegant manners of the audacious rustic who had dared to beard them in their dens.

When the news of the passing of the Stamp Act reached Virginia, this august body met, and said there was no other course but submission. Not so said Patrick Henry. Now was the time to make matters square between the British King and the American Colonists. Much excitement ensued. A fierce debate occurred in the House of Assembly, and Henry holding his ground exclaimed with vehemence: "Cæsar had his Brutus, Charles the First his Cromwell, and George the Third"—hisses, cries and general uproar drowned his speech, but without quailing, in the first lull he finished, "*may profit by their example.*" He held his place and carried his points by the majority of *one vote*, yet it was sufficient. It has been said of Henry that he was one of the first moving forces of the Revolution. The tempest of war gathered rapidly. The quarrel with England deepened and gained strength. At last the Congress of the Colonies was summoned to meet in Philadelphia, September 3, 1774. Virginia chose Henry for a delegate, and he made the journey on horseback in company with Washington and Edmund Pendleton. He was in his seat at the opening of the session. When his turn came to speak that day, he arose slowly as if a heavy weight rested upon him, but when his mouth was opened it was filled with words of glowing eloquence, that astonished the deputies. Then followed that speech of his that shall be remembered as long as America has a heroic, a loyal pulse beating in her bosom. He began:

"There is but one lamp to guide my feet; that lamp is experience. There is no way of judging the future but by the past; and judging by the past, what has there been in the conduct of the British Ministry for years to solace, or sustain a hope in our hearts of equal rights or liberty of speech and action? Is it the insidious smile with which our petition for the repeal of the Stamp Act has been received? Sirs, there is a snare laid for our feet. Shall we suffer ourselves to be betrayed with a kiss? Ask how the gracious reception of our petition comports with the war-like preparations that seek to environ us by land and sea. Are fleets and armies necessary to a work of love and reconciliation? Have we shown ourselves so intractable that *force* must be used to win our love? Sirs, we deceive ourselves. These are implements of war and *subjugation*, arguments conclusive of Kings? Gentlemen, we are to be *forced into submission*. Great Britain has no enemies that calls out these armies and navies. They are meant for *us*. They are sent here to bind and rivet upon us the chains which the British Ministry have so long been forging. With what shall we oppose them? Argument? Sirs, we have been trying that for years. Have we any new pleadings to offer? No, sirs. We have petitioned, we have remonstrated, we have supplicated—our remonstrances, supplications and petitions have been spurned from the throne by the foot of royalty. What then? Would we be *free*? would we preserve inviolate the privileges of home and country? we *must fight!* I repeat it, sirs—and the measured, majestic tones thrilled the nerves of the listeners—"We *must* fight. An appeal to arms and to the God of Hosts is all that is left us. They tell us that we are too weak to cope with so powerful an adversary; but when shall we be stronger? Shall we gain strength by weakly hugging the delusion of safety and hope the while that they are binding us hand and foot? We are *not* weak. We shall be armed in a holy cause. That God who holds the destinies of nations in the hollow of His hand will hear our cry. He will aid us. The battle is not to the strong alone; it is to the vigilant, the active, the brave. Besides, gentlemen, this state of things is not of our electing. There is *no* retreat for us but in *submission* and slavery. Our chains are forged. Already their clanking may be heard on the plains of Boston. The war's inevitable—and let it come. I repeat it, gentlemen, *let it come!* It is in vain to extenuate the matter. Gentlemen may cry 'peace—peace'—but there is no peace. The war is actually begun. The next gale that sweeps from the North will bring to our ears the clash of resounding arms. Our brethren are already in the field. Why stand we here idle? What would we have? Is life so dear or peace so sweet as to be purchased with *chains and slavery*? *Forbid it, Almighty God.* I know not what course others may take, but as for me"—and with knitted brows and working features, he tossed his arms aloft, crying in tones swelled to the boldest note of exclamation:—"Give me liberty or give me death."

A profound silence followed this vehement declaration. Then, with quivering lips, the cry went out: "To arms!" And "to arms! to arms!" swelled into a defiant, trumpet-peal, not again to be drowned or hushed until the proud young Republic burst her chains and called with stentor tones: "We're free! we're free!"

Patrick Henry's voice, Patrick Henry's eloquence, was like a blazing brand thrown among explosive combustibles. His spirit permeated the colonies. He believed what God asserts, that of *one flesh* He made all the nations of the earth. He believed that the whole human family had equal rights, and especially the birth-right of liberty.

We are glad that Patrick Henry's private life and character were so free from silly vanity and vain boasting. He was brilliant and gifted, but there was no arrogance; and his playful, amiable and cheerful disposition was brought into the very best place of display upon the whole wide earth—at home.

He was the centre and sun of attraction in his family, and the most timid member feared not to draw nigh and bask in the light of his smile.

Keep the memory of our forefathers sacred. To them, ordained of heaven to labor through the burden and heat of the day, we owe the blessed hopes and privileges of this Centennial year.

Christopher Carson.

The name of "Kit Carson" is familiar to the reading public of America; and just now, while the recent horrible massacre of brave Custer and his loyal troops is fresh in the minds of the people; while they may partly appreciate the perils that surround those who bravely take the front of civilization, and offer, as it were a quivering breast-work of soldier martyrs to protect the onward-coming tide of immigration and pioneer life; a brief outline of this intrepid border hero's life may prove interesting and instructive.

Christopher Carson was born in Madison County, Kentucky, December 24, 1809, and while "Kit" was still an infant, his parents removed with him to the then frontier of Missouri. At an early age it was projected for him to learn a trade, but after a little time he found the routine of his labor too monotonous to be endured by such an adventurous spirit as was awakening to life in his breast.

Historians differ somewhat as to the exact date when he entered upon his wild life upon the plains, some setting the age of seventeen, others affirming that when he was only fifteen he joined a trading party bound for Santa Fe. From thence he pursued his daring way into the lower Mexican provinces, where his untamed nature found ample food in wild exploits and daring adventures. For some time he was employed as teamster in the copper mines of Chihuahua. His trapper life began in the regions of the Rio Colorado, California. After encountering untold perils, hardships and "hair-breadth" escapes, he returned to Taos, New Mexico, and joined himself to a trapping party bound for the head-waters of the Arkansas. Here among the wild mountains that lift their ribbed and ragged backs about the head-waters of the Missouri and Columbia rivers, he spent eight years of his eventful life. Trapping was then a flourishing and lucrative business, but the class of men engaged in this pursuit exhibited marked and striking traits of character. As they mingled with nature in her original and untamed state, made her wild rivers and grand mountains their companions, as it were, encountering at every point the fierce, brave and stealthy savage, subject to storms, to cold and heat, to privations and suffering of every form, noble energies and heroic self-sacrifice were developed within the rough and dauntless breasts. Carson became pre-eminent in these characteristics, and was soon famous as a successful trapper, unerring marksman, and most reliable guide.

In many a daring conflict with hostile Indians he fearlessly led the van and came off victorious, just one time in all his life receiving a bullet wound. This was in the shoulder during a skirmish with the murderous Blackfeet tribe.

Colonel J. C. Fremont, who found Carson of inestimable value to him during his Western explorations, pays tribute to the brave guide's worthiness. In a letter written in 1847, he says: "With me, Carson and truth mean the same thing. He is always the same—gallant

and useful. He is kind-hearted, and dislikes quarrels and turbulent scenes." Only one particular instance of his being drawn into a broil is recorded.

Happening to find himself at one time in a "rendezvous" of hunters, trappers and traders—a mixed and motley company of Frenchmen, Spaniards, Dutchmen, Canadian and Western backwoodsmen—he heard the boasting of a foreigner until he had said that Americans were dogs and only fit to be whipped with switches, and insolently affirmed that he had, or could, whip any one of them. Carson stepped out of the crowd, his grey eyes flashing fire.

"I am an American, the most trifling one among them, but"—and he leaped upon his horse. It was a challenge. With leveled, loaded pistols they dashed upon each other. The reports were almost simultaneous. The Frenchman's ball grazed Carson's cheek near the left eye, cutting off some stray wisps of hair; his shot entered the braggart's hand, came out at the wrist and then went through the arm above the elbow. The offender immediately cried for quarter, and Carson spared him.

After his eight years of journeying about the headwaters of the Missouri and Columbia rivers, he took the post of hunter to Bent's Fort, in the new Territory of Colorado. It was about this time that Fremont met him and secured his services as guide on the Rocky Mountains.

It 1847, Carson was sent to Washington as a bearer of dispatches, and was appointed Lieutenant of the Rifle Corps of the Army. Several years later he undertook the exploit of driving 6,500 sheep across the mountains into California. He succeeded in his undertaking, and on his return to Taos was appointed Indian Agent of New Mexico.

While agent in New Mexico, he visited Washington with a deputation of red men for the purpose of making a treaty with the United States, and with his "unwashed heathen" he made a tour of several of the Eastern and Northern cities.

Although Carson had but little education, he was a man of wonderful natural abilities, speaking French and Spanish fluently, besides several of the Indian tongues. All the difficult and responsible tasks entrusted to him, he safely and expeditiously carried through, to the entire satisfaction of his patrons.

Perhaps no other man acquired so much practical knowledge of the rivers, plains and mountains of the Great West, as Christopher Carson. He had hunted, scouted and trapped all over the Western Territory, understood more of the wily Indian nature, fought more hand-to-hand battles with them, and had more miraculous escapes from imminent perils than any other borderer of whom to-day there stands authentic record.

As a scout he was unequalled. So wonderful were his faculties in this respect, so keen his perceptions, that he could decipher the hieroglyphic marks upon an Indian trail as readily as we can read a common book. He could accurately judge of the number of warriors in the party, trace their errand or expedition by the trail marks of their horses, and set the time within a few minutes that had elapsed since the braves had broken camp.

As the years glided on Carson thought more of the comforts of home than he did in his early years, and quietly forsaking his wandering life, he settled upon a fine ranche in New Mexico. But it was not for him to enjoy a quiet life long. By some strange accident an artery was ruptured in his neck, and he died May, 1868, in the fifty-eighth year of his age.

While Indian Agent in New Mexico, Carson married an Indian woman, to whom he proved an attached and devoted husband. She died, leaving a daughter. Afterwards he married a lady of New Mexico. She is spoken of as a very respectable and worthy woman.

It will not be amiss in this biography to relate some striking incidents in brave Carson's life. The accounts are given by Fremont.

He speaks of two Mexicans coming into camp—a man named Andreas Fuentes, and Pablo Hernandez, a handsome lad of eleven years. They belonged to a party of six persons, the other four being the wife of Fuentes, the father and mother of Pablo, and Santiago Giacomo, a resident of New Mexico. With a cavalcade of about thirty horses, they had come out from Puebla de los Angeles, near the coast, under the guidance of Giacomo, in advance of a great caravan, in order to

travel at their leisure and to secure food forage for their animals. When, as they thought, at a proper distance, they camped down to await the coming of the train.

For a day or two several Indians, very friendly in behavior, hovered about the camp. Their deportment lulled all suspicions; but these disappearing, suddenly returned with hundreds of warriors and attacked the travellers. Pablo and Fuentes chanced to be mounted and on horse-guard.

One object of the savages was to secure the horses, but, in obedience to the shouts of the guide, Fuentes drove the animals over and through the assailants in spite of their arrows, but the animals were afterwards captured. Knowing that they would be pursued, they drove on without any halt save to shift their saddles to fresh steeds. They had hoped to meet the caravan, but instead rode into our camp filled with terrible apprehension concerning the fate of their friends.

Carson and a man named Godey, of Fremont's party, immediately volunteered to return with them to deliver the captives if alive, or avenge them if they were murdered. Fuentes did not go far with them, as his horse gave out, but in the afternoon of the next day, a war-whoop was heard such as the Indians make when victorious, and soon Carson and Godey appeared driving in the band of horses.

They had gone on, and towards nightfall found the trail leading into the mountains. After sunset the moon came up with her light, and they kept the trail until it led into a narrow defile which was dangerous and difficult to follow. Here they tethered their horses and laid down to sleep, and at daylight resumed pursuit, and about sunrise discovered the horses, and immediately dismounting and tying up their own animals, they crept forward to a piece of rising ground, to reconnoitre. They had crept up close to the lodges when a movement among the horses discovered them to the Indians. With a whoop the scouts charged into the camp, and were met with a flight of arrows, one of which passed through Godey's shirt collar.

So wild and unexpected was the charge, that the whole party of savages that made up the four lodges fled. Some of the best horses had been killed and the red robbers were preparing for a feast; a basket containing some fifty pairs of moccasins told of a large party expected in to the banquet.

Carson and Godey performing this daring exploit, which cannot be surpassed in the annals of border history, swooped up the stolen horses, and dashed away upon their return trail, having ridden a hundred miles in the pursuit, and coming back in thirty hours, besides resting from midnight until dawn on the defile trail. It is needless to add in this incident, perhaps, that all the members of Fuentes' and Pablo's party were found horribly butchered.

On another occasion a party of these red pirates had decoyed and murdered several of Fremont's party, and on the second day after the murder, Carson, riding ahead with ten men, suddenly came upon the murderers' village containing not less than a hundred warriors. Fremont's orders were if they discovered Indians to send back and let him come up with his men; but Carson had advanced too far when he discovered the village to dare to retreat; he, therefore, made an instant charge with his small detachment, and after a short, sharp conflict, put the whole to flight. In this attack the hero-guide came near losing his valuable life. An Indian turned and fixed his arrow for its deadly mission; Carson leveled his rifle, but it snapped, when, most happily, Fremont just then coming near and seeing the danger of his faithful companion, spurred his horse to a reckless leap, rode on to the Indian, and knocked him down.

"I owe my life," Carson said, relating the incident, "to those two—the Colonel and Sacramento," referring to the favorite iron-grey horse of Fremont's.

Scores of these wild, truthful tales are told of Carson, making ample materials for the pen of the story-teller, and verifying the maxim that "Truth is stranger than fiction."

We have not taken up Carson's life to add another name to the list wherein are written those of the poet, the statesman, the orator, or divine; but who shall say that he, and such as he, do not deserve as high a niche in the temple of fame as any who stand there to-day?

The engineer holds a responsible position, but what could he do without the firemen and brakemen, and the

machinist that repairs and makes the iron steed? The successful general merits his honors, but where were the battles won were it not for the privates, moving shoulder to shoulder as he commands?

In viewing gorgeous silks, we are apt to overlook the worm that makes it; so the rough and dauntless pioneer who with his axe levels the forest and clears up the wilderness for the tenderer race to occupy, is just as worthy as the refined creature that plants sweet flowers in the soil that he has broken up and brought into even surfaces.

So the sturdy, inspired souls who dare the dangers and meet the hardships of pioneer life, whether it be in the highway to civilization or moral reform, deserve our appreciation, veneration and honor. Their names should be written high up among earth's heroes—her great men—and where is the dissenting voice to say us nay?

Glad are we to know that Fremont's heart, faithful in friendship and grateful for Carson's inestimable services in their great explorations, has planted an enduring monument in the Great West that will not let the hero-scout and pioneer sink out of sight. A border lake and a frontier river bears Carson's name—a name thus stamped permanently, as it should be, in the grand geography of our beautiful country.

Little Great Men.

It is a remarkable thing that some of the greatest men in history have been of small stature. Certainly, from all experience, height of person has no influence on the mental faculties. The chances seem to be that smallness of size, in fact, at times, a little lameness is advantageous. The reason for this is tolerably plain. Tall and robust men are apt to devote themselves, or at least to derive so much enjoyment from boisterous pursuits, as to be rather indifferent to any specialty in mental culture. Men of small stature, and perhaps weak health, are, on the contrary, driven to mental occupation. Studying hard in their several vocations, they rise to distinction. A comforting reflection this for young men who have the misfortune to labor under personal infirmities. We propose to give a few notable examples of "little great men."

Of the three world-wide conquerors whom Napoleon classed together—himself, Alexander of Macedon, and Cæsar—he alone was a little man. His predecessors were both of them men of a truly majestic presence, tall of stature. Alexander, indeed, if his portraits are exact, was remarkable for his handsome and manly aspect. Bonaparte was always presented in the English caricatures of him, both pictorial and verbal as a kind of pigmy. When the vulgar English crowded to his levees as First Consul at the Tuileries, in 1802, after the peace of the preceding October, to the disgust of the high-minded Sir Samuel Romilly, they were probably disappointed at not finding him to be a dwarf. "Bonaparte," says Miss Berry, in her lively description of one of his receptions, "by no means struck me as so little as I had heard him represented, and as indeed he appeared on horseback. His shoulders are broad, which gives his figure importance." Allusions to his stature were not always received by him with complaisance, but there is some humor in a correction which he once administered to one of his imperial grand chamberlains. The Emperor had made several fruitless attempts upon tiptoe to reach a book placed on a high shelf in his cabinet. The official hurrying eagerly to his assistance, said awkwardly: "Permit me, sire; I am greater than your majesty." (*Je suis plus grand que votre majesté.*) "Please to say you are longer. (*Dites, donc, plus long.*)" said Napoleon, with a scornful smile.

An earlier victorious French soldier, whose name is invariably cited as the "Great Conde," was a little man; so was his admiring pupil, the Duke of Luxembourg, of whom William of Orange once angrily said: "How does he know I am a hunchback?" Said Luxembourg, on hearing of the exclamation, "I have often seen his back, but he has never yet seen mine." The most celebrated of all naval Englishmen heroes, Nelson, was none the less endeared for his small size. The first of Russian warriors, the strange Suwarow, was another of those leaders whose shortness of physical stature seems to be reflected in the short decisiveness of their actions, according to the proverb, "Little and quick." Suwarow said that all his victorious tactics could be compressed into two words, "Advance; strike." He was famous,

also, for the laconism of his dispatches, like many other earlier and later commanders of the first rank. Whenever he held a conversation, he studied to express himself with great conciseness. It seems to be a fact, however that great generals of small size do not always prefer to be followed by small soldiers. Imposing stature has usually been in demand for the rank and file of fighting men. Marius would not willingly enlist any soldiers that were not six feet high. Mr. Carlyle has pictured with vivacity the tall Potsdam regiment of Frederick William, "the great drill-sergeant of the Prussian nation." Aristotle says that the Ethiopians and Indians, in choosing their kings and leaders, had particular regard to the beauty and stature of their persons. Perhaps the Greeks, with whom physical perfection counted for so much, followed the philosopher's great pupil, Alexander, with more satisfaction for the splendor of his person. Many of the greatest wits and humorists have been insignificant creatures in appearance; for instance, Voltaire, Quevedo, and Scarron; the last called himself "an abridgement of human miseries." Le Sage, who was singularly handsome, and Swift, who was a tall and muscular man, are witnesses that the keenest wit is not confined to a small bodily lodging. Both Dryden and Pope were little men. Rochester nicknamed the former "Poet Squab," and Tom Brown always called him "Little Rayes." Pope was only less deformed than Quevedo and Scarron, and was almost a dwarf; his consciousness of his mean appearance made him the more laborious in the cultivation of his talents, according to Shenstone. He was more sensitive and petulant than the first poet of the children, Dr. Watts, who was also afflicted, like Pope, with a littleness of body, and with lifelong sickness. It is related that when the hymn-writer was one day sitting in a coffee-house, he heard a gentleman say in a low tone, "That's the great Dr. Watts;" while another exclaimed, "What a little fellow!" Turning to the two speakers, he repeated, with good-humored seriousness, one of his own verses. It has been called by some who have told the anecdote an impromptu:

"Were I so tall to reach the pole,
Or mete the ocean with my span,
I must be measured by my soul;
The mind's the stature of the man."

All biographers who have taken little persons for their subjects, agree in drawing the same moral as Dr. Watts. When Calvin arrived at Nerac, and was trying to find the great-hearted Lefevre, every one of whom he made inquiries gave him the same sort of answer: "Lefevre is a little bit of a man, but lively as gunpowder." Thus Lefevre was quick to perceive the destiny of the young inquirer, and was the first to prophesy his future importance in the history of religion amongst the French-speaking people.

Thomas Jefferson.

Jefferson, of all our early statesmen, was the most efficient master of the pen, and the most "advanced" political thinker. In one sense, as the author of the Declaration of Independence, he may be called the greatest, or, at least, the most generally known, of American authors. But in his private correspondence his literary talent is most displayed, for by his letters he built up a party which ruled the United States for nearly half a century, and which was, perhaps, only overturned because its opponents cited the best portions of Jefferson's writings against conclusions derived from the worst. In executive capacity he was relatively weak; but his mistakes in policy and his feebleness in administration, which would have ruined an ordinary statesman at the head of so turbulent a combination of irascible individuals as the Democratic party of the United States, were all condoned by those minor leaders of faction who, yielding to the magic persuasiveness of his pen, assured their followers that the great man could do no wrong. Read in connection with the events of his time, Jefferson's writings must be considered of permanent value and interest. As a political leader he was literally a man of letters, and his letters are masterpieces, if viewed as illustrations of the arts by which political leadership may be attained. In his private correspondence he was a model of urbanity and geniality. The whole impression derived from his works is that he was a better man than his enemies would admit him to be, and not so great a man as his partisans declared him to be.

Samuel F. B. Morse.

With thrilling pulses we think and write of this man. He was born in Charleston, Mass., April 27, 1791, and was the oldest son of Rev. Jedediah Morse, D. D., who was prominent in our early history as a defender of orthodox faith. At the age of seven years young Samuel was sent to school at Andover, and after seven years of preparatory study he entered Yale College. Gifted with artistic taste and talent, after his graduation he sailed for Europe with William Allston to study painting under him. In 1815, he returned to this country and practiced his art for many years. In 1820, not being fully satisfied with his attainments, he again visited Europe and resumed his studies. He was absent this time some three years. In regard to his artistic life, we have only to say that he painted portraits and historical scenes with success, and ere long he was interesting himself in founding the National Academy of Design, in New York City. He was the first President of this Institution. Subsequently he was elected Professor of Arts in the New York University.

His prospects were very flattering on his second return from Europe; and, without doubt, if he had simply and earnestly pursued his profession, he would have obtained an enviable eminence among the great ones which have gone before and which are also yet to come; but he was destined for a greater work than this, and wider and more permanent fame.

While young Morse was in college he manifested much interest in scientific matters, and afterwards, while Professor of Arts, he studied the subject of electro-magnetism; although he did not allow his investigations to interfere with his other duties; for, inasmuch as he had devoted seventeen years to study and the improving of his talents, it was for his interest to secure the greatest possible returns for his time and expenditures; besides, he had an intuitive knowledge that his future success in his own country was no myth, but a permanent fact. But while on his second voyage home, even while he assured himself that success awaited him in his chosen avocation, a subtle, invisible power, evidently, was bearing upon him to change the whole current of his future life.

Away out on that watery, unstable route leading from the other Continent to our land, while our young artist sat at the mid-day meal on board the good ship Sully, a passenger chanced to speak of some new discoveries in electro-magnetism. With an indefinable thrill, we can imagine the insinuating, foreshadowing train of ideas that ran with lightning-like rapidity through the artist's mind. As this passenger went on stating that electricity would instantly pass over any known length of wire, Morse lifted his face, transfigured with prophetic fire and power, asserting in an impressive tone:

"This being so, there is no reason why intelligence might not be transmitted instantaneously by electricity."

Then and there passed the decree, which should echo down the ages yet unborn, that mind triumphant over matter should seize in its audacious, undaunted grasp, the most subtle and dangerous of all the heavenly elements, subdue it, command it, and enforce upon it the position of swiftest courier and most obedient servant.

It was for Franklin to conceive the marvellous idea of capturing the lightning of heaven; and for Samuel Morse to subdue this mighty force so that the finger of a child may beckon it to go or to come, and be obeyed.

But to return. This conversation on board the Sully took the deepest hold of young Morse's mind. He traversed the deck, and the "small, still voice" repeated the potent questionings. It's "Why, why may this not be done?" was as significant to him as the handwriting on the wall was to the ancient king. The writing was for Morse—he could interpret it; and in his berth he took his sketch-book and began drawing devices and arbitrary lines—the hieroglyphics, by means of which the most powerful and awful of all elements of nature should, in a moment, circle the world, as it were, conveying from man to man messages of love, of sorrow, of hate and despair. Entirely, intensely absorbed by this mighty subject, before the voyage was ended he had outlined a crude and general plan of his invention, and with every stroke of his pencil, every improvement of his crude plan, he became more and more impressed with the idea that he was destined to unfold to the world a stupendous and marvellous possibility.

On his arrival in the United States, Morse opened a studio, but devoted every spare moment to experimenting and perfecting his discovery. His means being limited, there were many discouraging circumstances surrounding him, but he was so overshadowed and impressed by prophetic knowledge, that he labored on undaunted. With the exception of a clock, he made the whole apparatus necessary for demonstrating his discovery, and in his room at the University he exhibited its workings to hundreds of people. With the wires stretched around and across his room he sent messages from one person to another, to the amazement of all but the inventor—illustrating in miniature what was destined to revolutionize the method of communication over the whole world.

But doubts, delays, ridicule and discouragements met him when he brought his invention before the public, and tried to induce the National Legislature to interest itself in the affair. He asked a money appropriation for an experimental telegraph line. The Congress of 1837-8 failed to help him, and yet undaunted, impelled by conscious power, he embarked for the Eastern Continent, asking both Europe and France for aid. Neither country responded. His extended hand fell back empty. Yet that "still, small voice" whispered: "Be not afraid—only believe;" and back again over the watery way he came, and besieged Congress once more. Nothing can be more interesting to a mind struggling through like difficulties, or to one which through similar experience has finally "come up higher" than to follow this struggle of Samuel Morse. He talked, he reasoned, he argued; he exhibited the perfect feasibility of his invention. One moment flushing with hope as some intelligent mind comprehended what to him was perfectly plain, anon receding discouraged, as some veritable "dead-head" scoffed at the whole affair as the offspring of an unsettled brain; thus he struggled in feverish or depressing excitement, and saw with sickening misgivings the last day of the session arrive without any action being taken in his favor. In despair, he returned to his lodgings thinking the next day to leave, and literally shake the dust off his feet as a witness against the city. How we pity and sympathize with him; his heart beating sorely, his head throbbing, the great gift which he had offered the world tossed back in his face with insolence and scorn—but at midnight a courier, flushed and eager, brought him word that Congress had accepted his proposals—it would help him. The telegraph bill had passed. Could he not call out joyfully: "The dawn has come!" The next year saw a line of telegraph operating between Washington and Baltimore, and from city to city flashed the first sentence: "What God has wrought." I feel as if there should have been something more in the sentence. "What God through finite man has wrought," would have been only a just tribute to Samuel F. B. Morse.

By God-given genius, by faith and patience was this marvellous invention made a success, and as Sidney Smith says:

"Honor is not due to him who first conceives something new, but rather to him who with inventive power comprises the energy to make the long, loud, clear, persistent calls upon the public until it is compelled to hear, heed and utilize the materials offered it for the good of mankind."

And the lofty and crowned heads, turned scornfully away from the struggling merit, came bowing down around the pedestal when genius had mounted to its rightful throne; but, happily, those laden with many talents feel the weight of responsibility and walk humbly without pride and vain-glory.

And now in Central Park, New York, stands an elegant bronze statue of Professor Morse. It is prominently raised near the principal avenue of the beautiful oasis of the great Metropolitan City. Its cost was some \$11,000, contributed chiefly by dollar subscriptions from telegraph operators throughout the country. The Quincy granite base was the gift of a New York gentleman. The entire statue, including base, is fifteen feet high. The evening after the inauguration of the statue, Prof. Morse gave a reception at the Academy of Music. The proceedings were interesting in the highest degree, for the most eminent representatives of the professions and ranks of life were present, while the main building was filled with the beauty and intelligence of the land. There was a varied programme for the evening's enter-

tainment—music, prayers and addresses by the talent of the age. The most intense interest culminated around the hour of 9 P. M., when a brief sentiment from Prof. Morse was to be received the same instant by all the cities of the United States and the Canadas. The electrical arrangements were under the direction of George B. Prescott, Electrician—responses coming back from all the principal cities, and from Europe, Asia and Africa in ten minutes.

At the time of the inauguration of the statue, June 10, 1871, Professor Morse is described as a noble type of the venerable yet hale and intellectual powers pertaining to the patriarchs of science and art. His address delivered on the occasion show a heartfelt sympathy for the young, gifted and aspiring; and while we feel that we do not fully appreciate the changes wrought in social and political life in our business, our literature, our journalism, in our times of war and of peace, by the electric telegraph, yet with awe and veneration we are led to exclaim again and again:

"Behold what God through finite man hath wrought."

The History of a Life

A little child wandered carelessly along a flower-strewn path. He plucked the fragrant blossoms, and becoming tired of them cast them aside; he chased the golden-winged butterfly, or listened to the sweet songs of the feathered choir. When fatigued, he reclined in the generous shade of some noble forest tree, and was lulled to repose by the musical tinkling of some laughing brook or miniature cascade. Thus the morning of his existence passed happily away. He thought not of the future, nor cared but to enjoy to the utmost the pleasures that were borne to him on the wings of each succeeding day. Years flew apace; the careless child became a dreamer; the future rose before him bright and joyous; he built fairy air-castles whose gold-tinted turrets aspired to the heavens. Fame held before him a crown of laurels; in imagination he beheld his name inscribed in living letters of fire upon the book of ages. He now began the battle of life right earnestly.

Home, friends, kindred, were all sacrificed for the god Ambition. He heeded not that the path was rugged and pebble-strewn, or that his feet were bruised and bleeding. He beheld not the shady groves on either side, nor listened to the tinkling fountains. Friends entreated him in vain to tarry with them; his eyes are fixed on the delusive vision before him, and he struggles onward—ever onward, and upward. Now and then he pauses to plant a few flowers and shed a few tears on a newly made grave; then he locks his sorrow deep in the innermost recesses of his heart, and with firmly compressed lips he hurries on. Now his footsteps lead through a lovely valley; verdure-clad meadows are divided by a broad river, like a silver band; herds of lowing kine graze in the fields. The blue smoke curls from a thousand chimneys of quiet, vine-embowered homesteads, where peace, contentment, and the simple joys of a rural life reign supreme. He is weary and heartsick; oh! that he might linger here, and taste the blessings of home, to which he has so long been a stranger. But no, there is some uncontrollable power urging him onward; an insatiable yearning for some higher, nobler phase of existence than is to be found in this common, work-a-day world.

At last the goal is reached; panting and exhausted he clutches the glittering crown—he feels himself in a new world. His old-time friends and companions seem like mere dwarfs to him, while viewing them from the vast heights to which he has ascended. He hears his name on every side, but there is bitterness mixed with the sweet; on one side he is extolled to the skies, on the other he is subjected to the most extravagant, and oftentimes unjust, criticisms. He was feted and lionized to his heart's content, but still he was not happy. "I will acquire wealth," said he, "hundreds, thousands, millions; what is it money will not purchase?"

Then the struggle began anew; the noonday of his existence was spent in the feverish pursuit of a delusive phantom. Again everything that would conduce to distract his thoughts from the object of his exertions were disregarded. Again his efforts were crowned with success, and he was the possessor of almost unlimited

wealth. But he was doomed to experience bitter disappointment, for he found not the happiness which he had fondly hoped wealth would bring him. He drained the cup of pleasure to the very dregs; then he stood aloof and as the sparkling peal of a careless laugh was borne to his ears, he smiled a smile which was not pleasant to behold—a smile which marked him as a cynic. He had realized, alas too late, that money would not buy forgetfulness of duties neglected. Memory, with painful pertinacity kept knocking at the sealed portal of his heart, and reverted to a lonely grave wherein reposed the remains of her unto whom he had promised to "cleave until death did them part." How had he fulfilled that promise? There came visions of a deserted fireside, and of a pale, patient, loving woman, who sat listening, waiting, watching for a beloved one who never came.

Slowly and sadly he wandered to the little country churchyard. Entering, he paused beside the graves of his wife and only child, whom he had forsaken that they might not prove a hindrance to him in his upward journey. Evening stole on apace; the night wind rustled and whispered in the tall poplars, the marble headstones looked ghastly in the dim light, and this man—bowed, sorrow stricken and repentant—knelt beside those grass-grown mounds, and prayed silently and earnestly.

He is now descending, with feeble, tottering footsteps the rugged path on the other side of the hill of life. The poor and needy whom he meets on his way, regard him with a sort of reverence. He is ever ready to aid the poverty stricken, and minister to the afflicted. In doing good deeds he has found peace and contentment, if not happiness, at last. The sun of his existence is fast declining, and he is waiting—peacefully, hopefully waiting that blessed change, when, "like a tired child, he shall sink to rest on the 'bosom of mother earth.'"

John Randolph and Lord Byron.

We find the following description (of perhaps the two most remarkable men that ever lived,) in George Ticknor's Memoirs. Here is his portrait of John Randolph:

The instant I entered the room my eyes rested on his lean and fallow physiognomy. He was sitting, and seemed hardly larger or taller than a boy of fifteen. He rose to receive me as I was presented, and towered half a foot above my own height. This disproportion arises from the singular deformity of his person. His head is small, and until you approach him near enough to observe the premature and unhealthy wrinkles that have furrowed his face, you would say that it was boyish. But as your eye turns toward his extremities, everything seems to be unnaturally stretched out and protracted. To his short and meagre body are attached long legs, which, instead of diminishing, grow larger as they approach the floor, until they end in a pair of feet broad and large, giving his whole person the appearance of a sort of pyramid. His arms are the counterparts of his legs; they rise from small shoulders, which seem hardly equal to the burden, are drawn out to a disproportionate length above the elbow, and to a still greater length below, and at last are terminated by a hand heavy enough to have given the supernatural blow to William of Deloraine, and by fingers which might have served as models for those of the goblin page. In his physiognomy there is little to please or satisfy, except an eye which glances on all and rests on none. You observe, however, a mixture of the white man and the Indian, marks of both being apparent. His long, straight hair is parted on the top, and a portion hangs down on each side, while the rest is carelessly tied up behind and flows down his back. His voice is shrill and effeminate, and occasionally broken by those tones which you sometimes hear from dwarfs and deformed people. At table he talked little, but ate and smoked a great deal.

He says of Lord Byron:—"Instead of having a thin and rather sharp and anxious face, as he has in his pictures, it is round, open, and smiling; his eyes are light, and not black; his air easy and careless, not forward and striking; and I found his manner affable and gentle, the tones of his voice low and conciliatory, his conversation gay, pleasant, and interesting in an uncommon degree." He received more kindness from Lord Byron, with whom he became very intimate, than from any other person in England to whom he had notes of introduction.

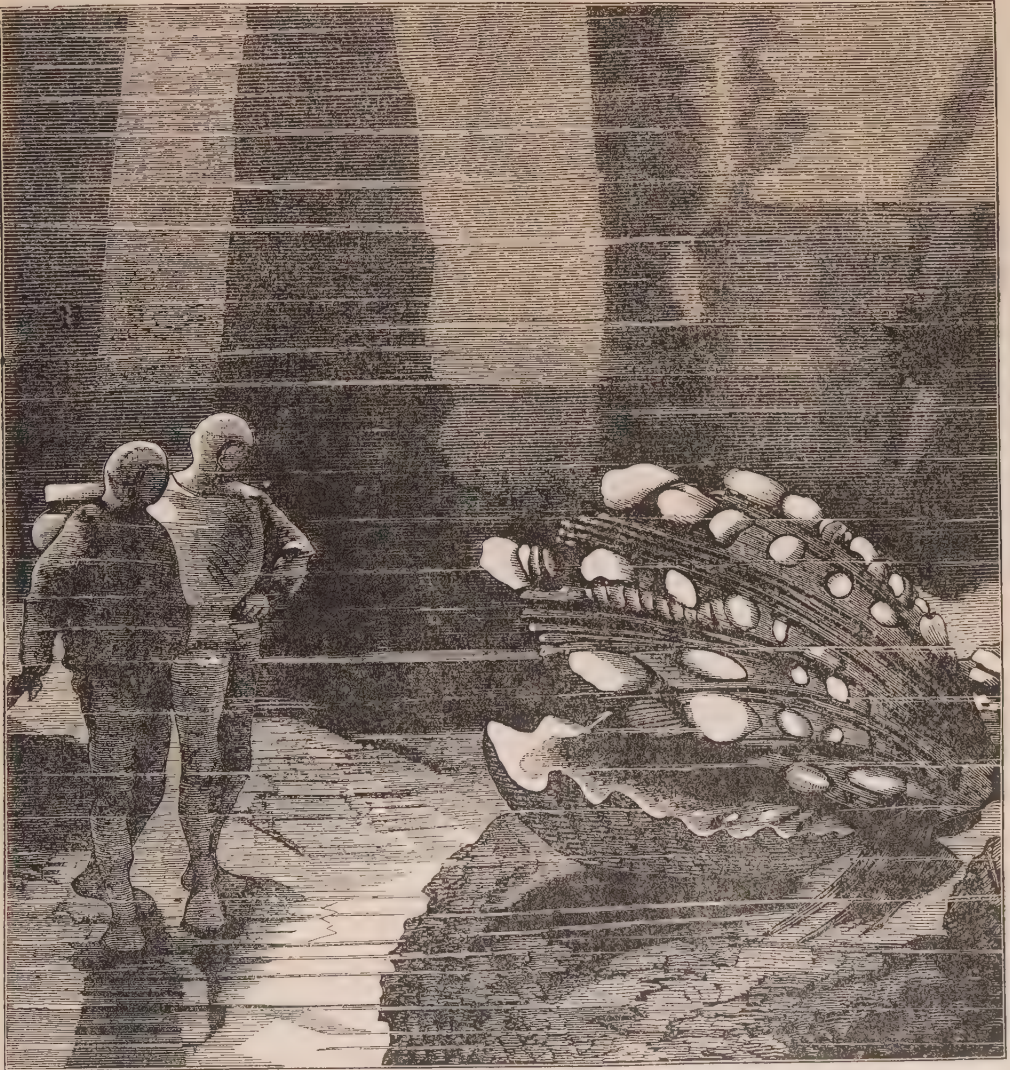
LIFE IN THE OCEAN DEPTHS.

"Clear through the shining, liquid glass I gazed,
Discovering a world!"

The unscientific man is generally startled a little when Agassiz tells him that "the ocean is the true home of animal life." He is so accustomed to think of the sea as barren and desert, that he "makes great eyes," as the Germans say, when the naturalist assures him that is the land which is comparatively bare of animal

to realize this when we look down into a shallow, waveless sea, and observe the variety of creatures of all sorts—crabs, snails, worms, star-fishes, polyps, which have their homes among the sea-weed; and yet those animals which we are able to see in their sub-marine abodes are nothing in comparison to the hosts of smaller creatures imperceptible to our eyes—the *infusoria*, myriads of which the microscope brings to our view, and which are all, without exception, aquatic.

The latest investigations into deep sea life show



"I SAW A LOOSE PEARL, WHOSE SIZE EQUALED THAT OF A COCOANUT."

life. The land, to be sure, is the habitation of the most perfect of animals; and as it is, besides, the home of our own species, we naturally connect the idea of life with it rather than with the ocean. The land, moreover, affords more favorable conditions for the development of a greater variety of functions, among which is the faculty of uttering sounds, while almost all marine animals are dumb. The latter have such a quiet way that we are apt to overlook them—the fate of quiet people generally.

Sure it is in the number both of species and of individuals, the ocean far exceeds the land. We begin

that the vast area lying beneath the ocean is covered with a simple animal life, boundless in extent and infinite in variety. Under conditions too rigid and severe to permit the growth of the humblest sea-weed, these creatures live, and multiply, and die. Far beyond the reach of light, in a glacial temperature, and under an enormous pressure, exists this wonderful fauna. As we strip the mystery of vitality of garment after garment, as its conditions become fewer and its mode of existence less complex, the wonder instead of becoming less, constantly grows upon the mind. The human intellect

longs to find a commensurate physical cause for the effect which we call life. When, as in higher organic beings, the conditions are many and the processes complicated, the phenomenon of vitality does not seem so puzzling; antecedent appears to bear some sort of proportion to consequent. The mind rarely troubles itself to make nice distinctions between complicated machinery and motive power. A liberal display of wheel-work is adequate to account for results without any reference to the initial force. But as we contemplate the life of the protozoa, which reign supreme in the ocean's depths, we see the awful and mysterious problem presented in its simplest terms; forms of existence which are formless, organisms possessing no organs, life contradicting the very definitions of life, and yet performing all its essential functions. The conditions, complex and multitudinous, under which we live, are here reduced to two or three; the elements, many and bewildering, which enter into the ordinary statement of the problem, are here eliminated, and yet we are forced to recognize the same vital principle giving functional activity to a mass of structureless jelly which animates the highest organic beings.

When we see this formless life governed by laws, each in itself as inexorable as that which guides the rolling planets, and all in their various combinations as flexible as those which control our human existence, we feel the sense of awe which a whisper from the unseen world might send thrilling through our nerves. We are standing face to face with life stripped of its familiar conditions. It looks us in the eyes as the disembodied ghost of the life now so familiar to us.

The plants and animals which live at the bottom vary with the climate, as they do on land. In the temperate regions vast forests flourish beneath the waters, and these shady retreats are the homes of multitudes of mollusks, crabs, and the smaller fish.

"There long reeds swung,
Balanced by the lazy ripples; sea-plants raised
Their emerald crowns aloft; dark mosses clung,
Golden and brown, to rocks that seemed fit couch
For mermaids and languid water-brides;
Bright, tawny bulging sea-weed in its pouch
Held living jewels twinkling through the sides;
Blue polished pebbles and pink twisted shells
Paved the clean floor."

In the heated waters near the equator, the vegetation is not so abundant nor so delicate as in the cooler regions. Although light penetrates the water for only a few hundred feet, these animals have perfectly formed eyes, apparently made for the reception of light, as in fish nearer the surface. Though all the attempts to ascertain the temperature of the sea have in a degree failed, results have been attained sufficiently accurate to convince the scientist that it is not uniform. Marine currents cross each other in all directions, forming impassable barriers between the different classes of animals. Those of the polar region are as effectually cut off from the fish of the warmer gulf stream as they could be by a wall, while the genial heat of that well-known current nourishes multitudes of animals to which the neighboring waters would prove fatal.

The bed of the sea is constantly filling up with substances washed from the shores and by the immense rocks that are crushed in the iron grasp of the waves. The rivers all carry more or less loose earth or gravel along with them in their courses, and some of them have their waters so thickened with this debris that they may be distinguished from the clear sea water for miles from their mouths. Then, too, myriads of minute sea insects build up their frail framework to the very top of the water, and the waves constantly carry earth to these reefs until enough accumulates to grow the seeds deposited by the very busy sea, and lastly men come to inhabit those islands which seem to have arisen from nothing, so gradual was the work and so diminutive the workmen. Beside the more useful coral made by this little insect, we find in the wealthy ocean rare gems and the finest coral from which jewelry is made. It is formed in the shape of a branched trunk, which is of various shades between white and a deep red, and as hard as the most compact rock. Here and there

on the surface can be detected very small holes, in each of which resides one of the builders. These insects, when expanded, show all the appearance of small white flowers, with eight divisions spread out like rays. It was this deceitful appearance which made naturalists hesitate so long about the nature of coral, as some of them thought it to be a plant which petrified on being taken from the sea.

Coral is fished up from the lowest depths of the ocean by a kind of a drag with arms on which are supported nets to catch the coral that is torn loose. Pearls are also found in great abundance in many waters. They are formed inside the shell of the pearl oyster by its having swallowed a grain of sand; or, some say it is the oyster's tear. Men are employed in diving for them in large diving-bells made for the purpose, as shown in No. 62 of GROWING WORLD. The pearl fisheries are of great value, and yield a large profit to their owners, who buy the territory by the acre.

Could we only descend for a short time beneath the blue depths of the Pacific, and walk among the submarine forests, exploring the unknown regions of darkness, or visiting the haunts of some of the most gigantic of the animal kingdom, what marvelous stories could we not tell, and what beautiful sights hold in remembrance! Then fancy the strange sensation we must experience in walking away down deep in the sea, where probably no other human foot ever rested, with the boundless vastness of briny water over and around. I fancy thought of the millions drowned in this treacherous element would come to mind,

"For they are lulled by cradle-song of waves,
And soft, green waters kiss their sealed eyes;
Round them smooth currents wind through twilight caves;
They sleep on moss, but buried treasure lies
Golden and pearl anigh their crystal graves.
High overhead they feel the sea gull dip
With greetings sweet."

We might, perhaps, meet the monsters of the deep, and see them swim and play in their native element. It seems cruel to transport them to narrow tanks, like the whale at the New York Aquarium, after they have once experienced the joy of swimming in an endless sea.

Jules Verne, in "Twenty Thousand Leagues Under the Sea," invents an imaginary submarine vessel, shaped like a huge cigar and made of steel, called the *Nautilus*, that glided either above or beneath the water at a terrific speed, guided by the powerful agent electricity. It was 232 feet long, and its maximum breadth 26 feet. It was divided into several compartments, was fully furnished with nautical instruments and a crew of able seamen. Its commander was called Captain Nemo, "the Man of the Seas." His skill in managing this remarkable vessel enabled him to shoot through the water, if he chose, at the rate of fifty miles an hour, and his nautical instruments enabled him to direct his course accurately. At one time the *Nautilus* went to the South Pole and was nearly crushed by icebergs, but Captain Nemo declared his intention of passing under the icebergs to reach the open sea. He said: "If these ice mountains are not more than 300 feet above the surface, they are not more than 900 feet beneath; and what are 900 feet to the *Nautilus*? The only difficulty is that of remaining several days without renewing our provision of air."

"Is that all?" said M. Aronnax (Professor in the Museum of Paris). "The *Nautilus* has vast reservoirs; we can fill them, and they will supply us with all the oxygen we want."

It was finally decided that the attempt be made, and ten of the crew cut away the ice, and down went the *Nautilus*. M. Aronnax says: "The sea was lighted by an electric lantern, but it was deserted; fish did not sojourn in these imprisoned waters. Our pace was rapid; we could feel the quivering of the long steel body."

"The next morning the electric log told me that the speed had been slackened. It was then going toward the surface, but prudently emptying its reservoirs very slowly. My heart beat fast. Were we going to emerge and regain the open polar atmosphere? No; a shock told me that the *Nautilus* had struck the bottom of the iceberg. We had indeed struck, to use a sea expression, but in an inverse sense, and at a thousand feet deep. Several times that day the *Nautilus* tried again, and every time it struck the wall which lay like a ceiling above it. That night no change had taken place in our situation. Still ice between four and five hundred yards in depth! It was evidently diminishing, but still what a thickness between us and the surface of the ocean! The groping of the *Nautilus* continued. About three in the morning I noticed that the lower surface of the iceberg was only about fifty feet deep. One hundred and fifty feet now separated us from the surface of the waters. My eyes never left the barometer. We were still rising diagonally to the surface. At length, at six in the morning of that memorable day, the 19th of March, the door of the saloon opened, and Captain Nemo appeared."

"The sea is open!" was all he said.

Captain Nemo and his party sought and visited many wonderful caves, forests, and other places of intense interest down under the sea. They encountered marine monsters, fought battles with them, and discovered jewels of almost untold value. They wore India rubber diving dresses, with copper head-covering. Thus equipped, they frequently went on exploring expeditions.

M. Aronnax says of one of these journeys: "We were obliged to follow the captain, who seemed to guide himself by paths only known to himself. Often we rounded high rocks scraped into pyramids. In their dark fractures huge crustaceans, perched upon their high claws like some war machine, watched us with fixed eyes, and under our feet crawled various kinds of annelids (leeches and red blooded worms).

At this moment there opened before us a large grotto, dug in a picturesque heap of rocks, and carpeted with all the thick warp of the submarine flora. At first it seemed very dark to me. The solar rays seemed to be extinguished by successive gradations, until its vague transparency became nothing more than drowned light. Captain Nemo entered, and we followed. My eyes soon accustomed themselves to this relative state of darkness. I could distinguish the arches springing capriciously from natural pillars, standing broad upon their granite base. Why had our incomprehensible guide led us to the bottom of this submarine crypt? I was soon to know. Captain Nemo stopped, and with his hand indicated an oyster of extraordinary dimensions, a gigantic tridacne, a goblet that could have contained a whole lake of holy water, a basin the breadth of which was more than two yards and a half. It adhered by its byssus to a table of granite, and there isolated, it developed itself in the calm waters of the grotto. I estimated the weight of this tridacne at six hundred pounds. Such an oyster would contain thirty pounds of meat. Captain Nemo was evidently acquainted with its existence. The shells were a little open. The captain put his dagger between, to prevent them from closing; then with his hand he raised the membrane with its fringed edges, which formed a cloak for the creature. There, between the folded plaits, I saw a loose pearl, whose size equaled that of a cocoon. Its globular shape, perfect clearness, and admirable lustre, made it altogether a jewel of inestimable value. Carried away by my curiosity, I stretched out my hand to seize it, weigh it, and touch it; but the captain stopped me, made a sign of refusal (conversation was impossible in the diving costume they wore), and quickly withdrew his dagger, and the two shells closed suddenly. I then understood Captain Nemo's intention. In leaving this pearl hidden in the mantle of the tridacne, he was allowing it to grow slowly. Each year the secretions of the mollusc would add new concentric layers. I estimated its value at \$10,000,000 at least.

After ten minutes Captain Nemo suddenly stopped. I thought he had halted previously to returning. No; by a gesture he bade us crouch beside him in a deep fracture of the rock, his hand pointed to a part of the liquid mass, which I watched attentively.

About five yards from me a shadow appeared, and sank to the ground. The disquieting idea of sharks shot through my mind, but I was mistaken. It was a living man, an Indian, a fisherman, who I suppose had come to glean before the harvest, for this was a famous pearl divers' ground. Here, in a month, Captain Nemo had said before leaving the Nautilus, will be assembled the numerous fishing boats of the exporters.

I could see the bottom of the pearl diver's canoe anchored some feet above his head. He dived and went up successfully. A stone held between his feet, cut in the shape of a sugar loaf, while a rope fastened him to his boat, helped him to descend more rapidly. This was all his apparatus. Reaching the bottom, about five yards deep, he went on his knees and filled his bag with oysters picked up at random. Then he went up, emptied it, pulled up his stone, and began the operation once more, which lasted thirty seconds.

The diver did not see us. The shadow of the rock hid us from sight. And how should this poor Indian ever dream that men, beings like himself, should be there under the water watching his movements and losing no detail of the fishing? He did not carry away more than ten oysters at each plunge, for he was obliged to pull them from the bank to which they adhered by means of their strong byssus. And how many of those oysters he, which he risked his life had no pearl in them! I watched him closely. His manœuvres were regular, and for the space of half an hour no danger appeared to threaten him. I was beginning to accustom myself to the sight of this interesting fishing, when suddenly, as the Indian was on the ground, I saw him make a gesture of terror, rise, and make a spring to return to the surface of the sea. I understood the dread. A gigantic shadow appeared just above the unfortunate diver. It was a shark of enormous size advancing diagonally, his eyes on fire, and his jaws open. I was mute with horror, and unable to move. The voracious creature shot towards the Indian, who threw himself on one side, in order to avoid the shark's fins; but not its tail, for it struck his chest and stretched him on the ground.

This scene lasted but a few seconds. The shark returned, and, turning on his back, prepared for cutting the Indian in two, when I saw Captain Nemo rise suddenly, and then, dagger in hand, walk straight to the monster, ready to fight face to face with him. The very moment the shark was going to snap the unhappy fisherman in two, he perceived his new adversary, and turning over, made straight towards him. I can see Cap-

tain Nemo's position. Holding himself well together, he waited for the shark with admirable coolness, and when it rushed at him, threw himself on one side with wonderful quickness, avoiding the shock and burying his dagger deep into its side. But it was not all over; a terrible combat ensued. The shark had seemed to roar, if I may say so. The blood rushed in torrents from its wound. The sea was dyed red, and through the opaque liquid I could distinguish nothing more—nothing more until the moment when, like lightning, I saw the undaunted captain hanging to one of the creature's fins, struggling, as it were, hand to hand with the monster, and dealing successive blows at his enemy, yet still unable to give a decisive one. The shark's struggles agitated the water with such fury that the rocking threatened to upset me.

I wanted to go to the captain's assistance, but, nailed to the spot with horror, I could not stir. I saw the haggard eye, I saw the different phases of the fight. The captain fell to the earth, upset by the enormous mass that leaped upon him. The shark's jaws opened wide, like a pair of factory shears, and it would have been all over with the captain, but quick as thought, harpoon in hand, Ned Land (an old fisherman, who was Captain Nemo's right-hand man) rushed towards the shark and struck it with its sharp point. The waves were impregnated with a mass of blood. They rocked under the shark's movements, which beat them with indescribable fury. Ned Land had not missed his aim. It was the monster's death rattle. Struck to the heart, it struggled in dreadful convulsions, the shock of which overthrew Conseil (servant to M. Aronnax).

But Ned Land had disentangled the Captain, who, getting up without any wound, went straight to the Indian, quickly cut the cord which held him to a stone, took him in his arms, and with a sharp blow of his heel, mounted to the surface. We all three followed in a few seconds, saved by a miracle, and reached the fisherman's boat. Captain Nemo's first care was to recall the unfortunate man to life again. I did not think he could succeed. I hoped so, for the poor creature's immersion was not long; but the blow from the shark's tail might have been his death blow.

Happily, with the captain's and Conseil's sharp friction, I saw consciousness return by degrees. He opened his eyes. What was surprise, his terror, even, at seeing four great COPPER HEADS leaning over him! And above all, what must he have thought when Captain Nemo, drawing from his pocket a bag of pearls, placed it in his hand? This munificent charity from the man of the waters to the poor Cingalese, was accepted with a trembling hand. His wondering eyes showed that he knew not to what superhuman beings he owed both fortune and life.

At a sign from the captain we regained the bank, and following the road already traversed, came in about half an hour to the anchor which held the canoe of the Nautilus to the earth. Once on board, we each, by the help of the sailors, got rid of the heavy copper helmet.

"To the Nautilus," said Captain Nemo, and the boat flew over the waves. Some minutes after we met the shark's body floating. By the black marking of the extremity of its fins, I recognized the terrible melanopteron of the Indian seas, of the species of shark properly so called. It was more than twenty-five feet long, its enormous mouth occupying one-third of its body. Whilst I was contemplating this inert mass, a dozen of these voracious beasts appeared around the boat, and, without noticing us, threw themselves upon the dead body and fought with one another for the pieces. At half past eight we were again on board the Nautilus."

* * * * *

They met with many other deep sea monsters, encountered many obstacles in their experience, saw strange, wonderful and beautiful sights; but we presume nothing in their wanderings and adventures exceeded what really does exist in the depths of the sea. With such a vessel and such a commander, how many of us would like to join him in a voyage round the world, visiting and examining the wonders of old Ocean's caves and hidden treasures!

There is a mysterious charm about the sea people; some of them exist, perhaps, only in imagination; but who would not like to see

"The pale white chargers of the sea .
Toss back their foam-white hair,
As swift they plunge beneath the waves,
With mist-robed sea-nymphs fair.

Far down in dim-lit coral caves
The mermaids coil and slide,
Or with fish-monsters, filmy-eyed,
Through walls of water glide.

While whirling up from darkling deeps,
With hurrying leap and reach,
The great wave Triton's dance and dash
Along the echoing beach."

What can be more foolish than to think that all this rare fabric of heaven and earth could come by chance, when all the skill of art is not able to make an oyster?

Horace Greeley.

Next arises before us the large, benevolent features of Horace Greeley. Such a pleasant face, and so full of character—the broad, high, full forehead, and keenly pleasant eye. Some boy, while reading the biography of this self-made man, must gird up his young soul in strength and exclaim:

“Why may not I press on over stumbling blocks and difficulties, and win a name and success in life?”

You may—you can. There is no patent on nobility in this free land, my boy; you have got to climb up no genealogical tree with “who was the son of Henry, who was the son of Seth, who was the son of Nathan,” and so on to gain eminence. America searches for no remote pedigree; she is not partial to elder sons nor heirs; wherever the active body and energetic mind wills to go, with God’s blessing they can go.

The Greeleys were not universally rich, by any means. Horace was born at Amherst, New Hampshire, February 3d, 1811. He was the third of seven children. His father’s farm was not fertile, besides being mortgaged; and it was a wearisome struggle to support the family and meet the interest on the debts. Horace remembered that almost as soon as he could walk about the farm, he was employed in picking up stones, and, doubtless, many a little boy to-day will agree with him, that there was no fun in this occupation.

Horace, in his autobiography says, the task was never-ending, for clean them off as nicely as you pleased one year, the next plowing turned them up as thickly as ever, in sizes varying from a hickory nut to a tea-kettle.

Whether it was natural instinct, or due to the stone-picking, the historian says not, but Horace disliked farm life. He learned to read before he could talk plainly, his mother being his teacher. She was a woman of more than ordinary intelligence, and she dearly loved poetry and music, and had an inexhaustible fund of song and ballads and stories, which she would repeat to her boy as she turned her spinning wheel, or held him on her knee. Horace would listen to them with eagerness, and they served to awaken in him a thirst for knowledge and an interest in literature and history.

When he was four years old, he could read common books correctly. When about this age he went to visit his mother’s father, with whom he lived for three or more years, attending school much of the time. He learned rapidly, and was noted for his proficiency in spelling.

When Horace was six years old his father removed to a larger farm in the town of Bedford. The boy was now recalled from his grandfather’s to assist the family upon the new place. Here he spent the next four years, and only securing what schooling the intervals of labor allowed. Here he began to learn that there is a great deal of hard work to be done in the world. He was frequently called out of bed at dawn to ride a horse to plow among the corn; full often was he kept at this job until the forenoon’s school was half done. He had more chance to go to school in winter, but with the intense cold, the biting wind and deep snows, it was hard work to attend with any regularity.

The simple little newspaper, taken in his father’s family, gave Horace the idea that a great world, with human beings, like a tide ebbing and flowing through it, lay beyond the grey New Hampshire hills, and sometime he must take his place in it.

Eagerly he devoured the contents of each issue of the paper, and, some way, he conceived the idea of being a printer. One day, as he watched a blacksmith in Bedford shoe a horse, the man, who was a friend to the boy, asked him if he would not like to learn the trade. “No,” said Horace, “I am going to be a printer.”

When Horace was about ten years old, his father removed to Vermont. At the head of Lake Champlain the family began life anew. For several years more our hero worked hard and fared poorly, but he was happy, for he had at last drifted into a locality where he could borrow and read newspapers and books. His hungry mind feasted, as it were, upon a sumptuous repast. By gathering nuts, and pine knots for kindling, which he disposed of at the stores, and by hunting wild bees he secured small sums of money which he invested in books. No king upon the throne was so happy as the boy, when by his own economy and planning he had purchased some coveted new volume.

When he was eleven years old, he heard that an apprentice was wanted in the printing office at Whitehall. With his father’s consent, he started off to walk the nine miles to the place, but he was rejected because of his extreme youth. This vicinity was noted at that time for its dissipation. So amazed, astonished and disgusted was Horace with the coarse barbarism which he beheld, that an utter abhorrence of obscenity and drunkenness filled his mind ever after.

At the age of fifteen, seeing an advertisement for a printer’s boy in the office of *The Northern Spectator*, published at East Poultney, Vermont, eleven miles from home, he asked leave of his father to try for the situation. He obtained it, and on the 18th of April, 1826, he began his apprenticeship in the *Spectator* office. He was to receive his board only for the first six months, after that his board and forty dollars a year for clothing. Soon after this Horace’s father removed to the town of Wayne, Erie County, Pa. For four years Horace worked faithfully at his trade. His employers were kind, but he was kept very busy. What leisure time he had was devoted to reading and improvement of his mind, and he became a leading member of the village debating society. He was firm, but courteous in his demeanor, frank, even-tempered and popular. He was never treated as a boy, but his opinion was weighed as that of a man of judgment. His little income of forty dollars a year was carefully husbanded, and out of it he clothed himself and sent the rest to his father.

In the year 1830, the *Spectator* office was closed, and Horace was thrown out of employment. With his scanty wardrobe and but eleven dollars in his pocket, he set out to visit his family, obtaining employment on the way in the office of the Democratic paper published at Sodus, N. Y. Here his wages were eleven dollars a month; but later in the year he obtained fifteen dollars a month in a printing office at Erie, Pennsylvania. So thorough was he in his work, that his employers offered him a partnership. Fortunately he declined it, for a dull season setting in soon after, worked unfavorably with the publishers.

Then Horace conceived the idea of seeking occupation in New York. Generously dividing his earnings with his father, he started off, making part of his journey on foot, and partly by canal and Hudson River steamer. He landed in New York August 17th, 1831. Poor, unknown, and awkward in appearance—we can picture him, frail and boyish—another young David going bravely out to fight a gigantic army of difficulties.

How the rush and the roar, the clatter and clang, the shrieking of locomotives, the jar of machinery, the incoming and out-going of the human tide awed and disheartened him. Within a circle of two hundred miles he knew no human being, and his unpolished address was a drawback to finding remunerative employment.

How often does the world go tramping over the pure gold unknowingly, because there is a sifting of dust on the surface that conceals the treasure within.

With all his personal estate tied up in a pocket-handkerchief, there was nothing to trammel the lightness of his step as he walked ashore, glad to be rid of the sibilant hissing of the escaping steam, perhaps fancying it something like the way the world would meet him now that he had fairly come upon the stage of action.

He soon found a cheap boarding-place, and as his funds were limited to the sum of ten dollars, he began an immediate search for employment. It was the dull, midsummer season, and his young appearance and embarrassed manner was not in his favor. For two days he travelled incessantly, and was told, at least one time, that he was probably a runaway country apprentice.

Disheartened and disgusted, Horace resolved to leave the city the next day after he was accused of being a runaway, but he learned from a chance visitor at the boarding-house, that John T. West, in Chatham street, was in need of a workman. He applied for and obtained the place, just because no other printer in the city would accept the situation, simply from the fact that the work was very difficult, being the composition of a miniature Testament with copious marginal notes.

Our hero had his job mostly alone, but he persevered and completed it, but so difficult was the work that he could barely earn a dollar a day. When the task was completed, Mr. West had no further use for him, and he was again without work for a short time. After a while he entered the office of Porter’s *Spirit of the Times*, a new sporting paper, where he was paid fair wages. He

won the friendship of Mr. Francis V. Story, the foreman of the office, who shortly after induced Horace to enter into a partnership with him in an office of their own.

Hiring two rooms, the new firm invested their small capital in printing material, and took such job printing as they could get, but their main dependence was the printing of Sylvester's *Bank Note Reporter*, and the publishing of the *Morning Post*, a daily penny paper, started by Dr. H. D. Shepard. But in a few weeks it proved a failure under Shepard's superintendence; afterwards it was bought by an Englishman, who, at least, managed to pay the printer's bills, and the young firm was beginning to get along well, when Mr. Story came to an untimely death by drowning.

Mr. Jonas Winchester, brother-in-law of Mr. Story, took his place, and by hard and persistent struggling a fair business was established. In March, 1834, Mr. Greeley and his partner began issuing a weekly paper called *The New Yorker*, which was devoted to literature and current news. Mr. Winchester attended to the business department, Mr. Greeley was sole editor. This publication was ably conducted for seven years and a-half, then followed the panic of 1837, and the credit system was disastrous to this periodical. In 1838, while Mr. Greeley was conducting *The New Yorker*, he became editor also of a campaign paper—*The Jeffersonian*—in the interest of the Whig party of the State of New York. This paper ran up to a circulation of 15,000 copies, and Greeley received a salary of \$1,000. In 1840, during the Harrison campaign, he published *The Log Cabin*, another paper on the plan of *The Jeffersonian*. This last publication met with unexpected success from the start, the first number attaining a sale of 46,000 copies. It was Horace's own paper, and was a profitable enterprise. After election it merged into a family newspaper, and finally developed, or was re-christened, the *Weekly Tribune*.

It had always been the darling ambition of Horace Greeley's life to be at the head of a first-class newspaper in New York. His New York *Tribune* was small at first, and sold for a cent a copy. It began its career with 600 subscribers, and a capital of \$1,000 borrowed money. The first edition of 10,000 copies proved a hard job to dispose of on any terms. But, fortunately, the *Sun* assumed the position of rabid critic, with intent to crush the young aspirant for popularity to death. Mr. Greeley showing fight, a pretty quarrel ensued, and the public became interested, and the *Tribune* was brought into notice. Thomas McClure was induced to become a partner in the enterprise, and a successful career was entered upon. No matter about his politics—it is evident that Horace Greeley had the welfare and morality of the mass of mankind at heart, and if he made mistakes—who does not make them—it was through errors of judgment and not of the heart. Let us have Mr. Greeley's aspirations as interpreted by himself:

"Fame is a vapor; popularity an accident; riches take wings; the only earthly certainty is eventual oblivion; and yet I hope that the journal which I have projected and established, may flourish long after I have mouldered back to dust. May it be ready to discern the right, and defend it at whatever cost."

In 1848, Mr. Greeley was elected to Congress, but there he was out of his sphere, being a born journalist, and in adhering to his natural calling lay his hopes of success.

Besides his editorial labors, he published several books. His arduous routine of labor showed that he preferred wearing out to rusting out; but a warmer or more generous heart is seldom found beating outside of a woman's breast, so delicate and refined were his sympathies for the sorrowing and unfortunate.

We grieve over his sad latter days. The death of his beloved wife, followed closely by the abuse and slander of political opponents, so wounded his sensitive heart and mind, that as his bodily strength gave way, mild insanity ensued, and the kind father, generous friend, and sympathetic benefactor passed beyond the confines of earthly life November 29th, 1873, in the sixty-second year of his age. "Peace to his ashes."

Pluto.

Pluto was a second brother of Jupiter, and received as his portion, in the division of empire, the infernal regions, or the world of shades. Under this idea the ancients imagined the existence of regions situ-

ated down far below the earth, and they represented certain distant and desert lands as serving for a path and entrance to the under world. Hence the fictions representing Acheron, Styx, Cocytus and Phlegethon, as rivers of hell. These regions below the earth were considered as the residence of departed souls, where, after death, they received rewards or punishments according to their conduct upon earth. The place of reward was called Elysium; that of punishment Tartarus.

Elysium is described as adorned with beautiful gardens, smiling meadows, and enchanting groves; where birds ever warble; where the river Eridanus winds between banks fringed with laurel, and "divine Lethe" glides in a quiet valley; where the air is always pure, and the day serene; where the blessed have their delightful abode.

Tartarus is represented as a hideous prison of immense depth, surrounded by the miry bogs of Cocytus, and the river Phlegethon, which rolls with torrents of flames, and guarded by three rows of walls with brazen gates; here the Furies torment their wretched victims, and all the wicked suffer according to their crimes.

The chief incident in the history of Pluto is his seizure and abduction of Proserpine, who thereby became his wife, and the queen of the lower world. She was a daughter of Jupiter and Ceres.

Pluto is represented, both by poets and artists, with an air menacing, terrible and inexorable. The latter usually exhibit him upon a throne, with a bifurcated sceptre, or a key in his hand. A rod is sometimes put into his hand instead of his sceptre. The device which places upon his head a sort of bushel or measuring-vessel instead of a crown, is of Egyptian origin, borrowed from the images of Serapis.

He appears crowned with ebony; sometimes with cypress leaves; sometimes with flowers of narcissus. He is also sometimes represented in the act of bearing off Proserpine in a chariot drawn by winged dragons. His worship was universal; but it was attended with special solemnities in Boeotia, particularly at Coronea. His temple at Pylos, in Messenia, was also celebrated. The Roman gladiators consecrated themselves to Pluto. The victims offered to him were usually of a black color. Under the control of Pluto were the three judges of the lower world, Minos, Rhadamanthus and Æacus. These decided the condition of all the spirits brought into Pluto's realm by Charon. Minos held the first rank.

At the entrance to the world of shades, in Pluto's vestibule, lay the dog Cerberus, a three-headed monster, that hindered the spirits from returning to the upper world.

Charon is said to have been the son of Erebus and Nox. His office was to conduct the souls of the dead, in a boat, over the rivers Styx and Acheron to the realms of Pluto. As all were obliged to pay to him an *obolus*, a small piece of money, it was customary to place a coin for that purpose under the tongue of the deceased before the funeral rites.

Such as had not been honored with a funeral were compelled to wander on the shore a hundred years before they could be transported.

Not a George Washington.

A benevolent fruit-raiser, much annoyed by the boys who robbed him of his finest peaches, one day chanced to see a minute marauder go up into one of his trees. He was ready for the emergency, for he had provided a large stuffed dog, which he placed at the foot of the tree, and then retired a little to watch the effects of his strategy. The little boy, having filled his stomach and his pockets with fruit, was about to descend, when his frightened eye rested upon the animal. First he tried blandishments, viz., whistling, coaxing. Then he tried the sterner dodges, viz., threatening, scolding. All was thrown away on the stuffed dog, standing sternly there, and never moving his stiff tail an inch to the right or left. The little boy had never seen a dog like that, and after awhile he understood that the tree must be his dormitory for the night. The hours dragged wearily on. The stuffed dog looked bigger and bigger in the dark. There was plenty of peaches, but where was the little boy to find appetite? In the morning the owner appeared, and asked the little boy how he happened to be in the tree. Alas! not in the least regenerated by his sufferings, he answered that he had been chased by the dog, and had ascended for safety.



Let the World Know You're a Man.

Come! off with your coat and roll up your sleeves!
 Young man, I'm speaking to you;
 Oh! why do you stand in this busy land,
 And say "there's nothing to do?"
 Just pull off your coat and roll up your sleeves,
 And do whatever you can;
 You'll find it will pay in the end, I say,
 To let the world know you're a man.

Come! off with your coat and roll up your sleeves!
 Then you'll find plenty to do;
 Don't sit down and growl, but get up and howl,
 And "paddle your own canoe."
 If you're in hard luck, then show you've got pluck—
 Never sit down and complain;
 But get up and dust, and scour off the rust,
 And then go at it again.

Come! off with your coat and roll up your sleeves!
 Young man, why do you complain,
 And stand on the street just like a dead beat,
 If "nothing was made in vain?"
 Now, off with your coat and roll up your sleeves!
 And do the best that you can;
 In the end 't will pay, as you'll find some day,
 To let the world know you're a man.

Come! off with your coat and roll up your sleeves!
 Take hold and work like a man;
 Don't be a drone in this world alone—
 You'll find it's not the best plan;
 But off with your coat and roll up your sleeves!
 And be the best in the van;
 Now, mark what I say! in the end 't will pay,
 To let the world know you're a man.

The Coming Men.

There is a very general complaint that it is becoming more and more difficult to find desirable occupations for boys. In all the vast industrial and commercial machinery of the country there seems to be no space for the lads who must shortly be the men of another generation. There was a time when boys were regularly apprenticed at mechanical trades or in mercantile houses. They served five or seven years in the shop, store, or counting-house, and rose by slow degrees to be partners, heads of houses, or independent masters in their own line of life. Other boys went to sea, after receiving a good common-school education, and passed through the several stages of promotion as cabin-boy, before the mast, ordinary seaman, master, and captain. All these, whether on sea or land, were the sons of American citizens, and whether of rich or poor parents, they were, for the most part, on a common level. There was not so much disrelish for manual labor as there has been in later years. Perhaps there was more sturdiness of character.

It must be confessed that the times have changed. How the introduction of a foreign element into active business pur-

suits is responsible for this, we cannot tell. It is certain, however, that something in the fore-castle and in the shop has made those places distasteful to the average American boy. It is rare nowadays to find a gentleman's son working his way to the quarter-deck from before the mast. The sneering phrase "greasy mechanic" oftener includes a fling at the ignorant and uncongenial foreigner than of old. With this change in the material of the mechanical trades have come the modern ideas concerning trades unions, with all their machinery of strikes, lock-outs, and strife with employers—ideas which are certainly not of American origin. One of the very first demands of the trades union is that a limit be fixed to the number of apprentices to be taken into any working force. Some trades have fixed the maximum of apprentices as low as one to each thirteen journeymen, or "full hands;" possibly others have made a still more rigorously exclusive demand. The theory of this sort of proscription appears to be that men who have acquired a trade are determined that their number shall be kept within certain limits during their lifetime. Any attempt to invade the magic circle is met with a strike, in which the workmen have the employers temporarily at their mercy. As employers are not specially anxious about posterity, they readily surrender.

To enter what are called the "learned professions" an expensive education is considered necessary. This is not attainable by most youths, and even when it is acquired it does not always lead anywhere. In these professions there is "always at the top," which is small consolation to those who are hardly able to crowd in at the bottom. Vast numbers of boys, therefore, are driven into mercantile pursuits—a vague term which means anything, from buying and selling ship-loads of goods to being "generally useful" about a warehouse or store. Here the crowd of applicants for place is tremendous. The pay is small, and, generally speaking, the chances for promotion and ultimate independence are smaller.

When we consider what possibilities are bound up in the boy, whose only badness, possibly, is what he has inherited without his own consent, his future, with only a few avenues of life open to him, is not cheerful to one who wishes well for his kind. To-day the boy stands at the dividing of the ways. The chances are that he will take that which leads to thriftlessness and uselessness, if not worse. The boy who learns no trade, masters no useful and productive calling, has lost his chance. He enters life handicapped. Men, though they may be prosperous and successful, as the world goes, sometimes turn back with a great cry for their lost youth. For a moment, before they take up their burden and go on, they plead that the youthful bloom, which no power in heaven or earth can restore, shall be theirs again. The boys of this generation are in great need that something be done to fit them for the manhood which comes to them apace. They complain that there is no room for them anywhere.

Knowledge is one of the greatest levers to future happiness.

The Seven Sleepers.

"It would awaken the seven sleepers" is a common saying; but we venture to say that half who use it do not know its origin. The legend runs that seven noble youths of Ephesus, during the persecution of the Christians by Decius, a Roman Emperor of the third century, fled and took refuge in a cavern, and having been pursued and discovered, were walled in and thus left to perish. They are said to have fallen asleep, and in that state were miraculously preserved for nearly two centuries, when their bodies having been found in the cavern, were taken out and exposed to the veneration of the faithful. Then it was said these holy martyrs were not dead; that they had been hid in the cavern where they had fallen asleep, and that they at last awoke, to the astonishment of the spectators. The spot is still shown at Ephesus where the pretended miracle took place, and the Persians celebrate annually the feast of the Seven Sleepers.

INFLUENCE.—You cannot live without exerting influence. The doors of your soul are open on others, and theirs on you. You inhabit a house which is well-nigh transparent; and what you are within, are ever showing yourself to be without.

Anson Burlingame.

There is great truth in the humorous remark, that it is not safe to point the finger of scorn at the most forlorn and ragged urchin that walks the streets of our land, for perchance you may be insulting the future President of the United States. This truth comes home to us with the greatest force, as we glance along the upward and onward course which our great men have pursued, and see them upon the eminence to which their merits have brought them.

We now have before our mind's eye a lad whose birth-place was a little village in New York. A boy in nowise without failings—perhaps not any more promising in feature, manners or circumstances, than the boy who holds this biography before his eyes. He was bright, active and careless, just like scores of other little fellows, and no one would have dreamed of prophesying future greatness for him, any more than they would of you; full of playful spirits, rather disinclined to work, and no more devoted to studiousness than the ordinary lad. The only peculiar trait about him that we hear of was his love for debate, which, early in life, made him a fluent speaker. We can imagine him—the son of a poor, local country preacher—stealing off to the woods, or by the rivers' bank and in other secluded places, haranguing an imaginary crowd, or fancying that the roaring of the winds in the adjoining forest was the distant applause of excited and appreciative audiences. We can see him reclining on the turf, his noble forehead shaded by the school-boy's battered cap-visor, dreaming of what he would do when he should come to be a man—for it seems to us as if some faint, uncertain foreboding of what he was to be, must have pressed with the weight of certainty upon his soul.

As he grew older the restlessness of young manhood assailed him, and untrammelled by wealth or position, he threw his rifle over his shoulder and in the wilderness of the far West he led, for sometime, a life of fascinating and dangerous adventure. Even then there was nothing more promising about him than there is about many a sturdy young fellow who scouts among the red men of "untutored mind," or draws a surveyor's chain between section and section, or from landmark to landmark in that wild country.

We find ourselves wondering if sometime when he camped down under the stars with his rifle for a companion, and his knapsack for a pillow, if a mirage of his future did not swim out of the sea of difficulties that seemed to hem him in. If so, Anson Burlingame beheld himself at school and afterwards at college, distinguished for his rich and ready flow of language, as he pleasantly met his opponent and silenced him with his felicitous expressions and elegant and well-toned sentences. Now there was developed in him a wonderful faculty of acquiring languages.

In 1846 he received his degree from Harvard University. Then in Boston, choosing the law for his profession, he began his glorious upward career. His remarkably happy style of expression, with the grand flow of words always at his tongue's command, brought him upon the platform before an astonished and admiring public.

Governor Briggs became his warm friend, and a law partnership with the Governor's son followed. Sweet, bewitching dreams of romance and love centred around the daughter of one of Cambridge's old influential residents. A marriage with Miss Livermore centred and buoyed his ambitions in a safely onward course. Then the State gladly honored him with a Senatorship in 1852. Following this, he was elected to Congress, and the whole country seemed delighted to yield his talents due homage.

A fierce contest of sentiment in the House between himself and the impetuous Southron, Preston Brooks, of South Carolina, led to a challenge to mortal combat. So unlooked-for an event, connected with a Northerner's cool and self-restrained code of honor, amazed the people, and caused a profound sensation to run throughout the length and breadth of the land.

The place appointed for the duel was in Canada, but Mr. Brooks learned that it would be at the imminent risk of his life to venture over the route to the place of meeting, otherwise our hero might have been shot, and a grand future spoiled. But Burlingame's fearlessness in responding to the Southerner's challenge made him famous, and as he travelled about the country, people

flocked to see the hero and orator.

Forward again with his history. For six years he lived in the Celestial Empire, which might be termed the country of queues. There, as a quiet diplomatist, he returned to his old pursuits of acquiring foreign languages, and he mastered the difficult Chinese dialect. And, let us question, was his renown simply owing to the fact of the old saying—"being born under a lucky planet?" or did persevering energy and far-reaching study, added to the divine gift of reaching forward to the tracing of effects from causes, win him success?

Seeing China, with her many resources and immense population, walled in from the foreign nations, he brought his powerful mind to bear upon the compassing of a more liberal international communication. What was the result? We find him embarking, so to speak, upon a great expedition, as Ambassador making a triumphal tour to all the treaty-making powers.

From extremely small beginnings did ever a career swell out into a more noble completeness, than the life of Anson Burlingame?

In his own country, while on the embassy of opening up, as it were, a grand highway among the nations, we behold him surrounded by the strange companions that composed his retinue, and receiving plaudits and ovations such as an honoring country gives her honorable sons, superadded to those due the envoy of a government opulent and powerful, with a history dating back into remote ages. In the Courts of Europe he was received with the magnanimous reverence due a diplomatist and an American—welcomed as the minister of a new brotherhood which might become world-wide and of immense consequence to the nations yet to be.

What a lesson for a poor boy—for you, my little reader—what a lesson of possibilities. Who shall prophesy for your future if you take "onward and upward" for your motto? With your principles firm for mercy and justice, and your soul holding firmly to the knowledge that by always choosing the right way God will be your steadfast and firm friend, and the rewarder of all your noble aspirations and deeds?

There are no beginnings so small but that rich developments of success may attend them.

How the life of this man thrills us. Picture him as the poor and unknown lad traversing the Western wilds, and contrast him with Anson Burlingame, Foreign Minister and Envoy Extraordinary, bound on one of the grandest missions of the age. Oh, what spirit power, what "still, small voice" awoke the possibilities lying dormant within his soul? Who can answer whether a mighty tempest or a sweet, soft breeze was the agent for the new life and glorious attainment; for some infinite power spoke the loud "come forth" to faculties that stirred the nations' hearts to honor and to action.

And that triumphal tour closed his brilliant life; and while our hearts sadden to mournful symphonies, we yet rejoice that if the end must come, then it should be thus crowned with success.

Here in the proud capitol of the Russias we find him dead, and while a nation mourns his loss, crowned heads are bared and bowed by his coffin, crowned heads do homage to the memory of the great spirit that has gone out from the cold tabernacle of flesh.

And, boys of to-day—the youth living in this glorious Centennial Anniversary of our country's free existence—remember that all possible distances that *have been* passed over between obscure youth and grand and glorious maturity of years, *may be* passed over again. Begin work *now*, and if you may not attain to the topmost eminence of fame, ascend as far as you possibly can, for with great struggles and small or great successes, comes the power to do good deeds and to benefit mankind.

Struggle on with strong endeavors,

For the good of fellow man;

If you can't do all you purpose,

'Tis as well—do all you can.

Faint not looking at the great ones,

Who a sounding name have won,

Many who the world know not of

Have as great a life-work done,

In the humble path of duty

Where their steadfast feet had trod.

'Till the angel's summons called them,

Home to rest and home to God.

Not being untutored in suffering, I learn to pity those in affliction.

VIRGIL.

Asa Packer.

Anthracite coal was first used in the Wyoming valley, Pennsylvania, in the year 1708. A blacksmith was the first one to utilize this valuable mineral. His name has not been carefully enough preserved. A hundred years afterwards, Judge Fell, of Wilkesbarre, first used it in a grate for heating the family mansion.

As late as 1820, the mining of anthracite coal may hardly be said to have begun, for the production of that year did not exceed 365 tons. Half a century later, in 1866, the annual production had reached twelve million tons. It is estimated that the anthracite trade of Pennsylvania at the present time represents a property valuation of three hundred and fifty million dollars, and many thinking people imagine that the trade is yet in its infancy.

To trace the course of the coal development is very interesting; how wagons were supplanted by arks; arks by canal-boats; canal-boats by gravity railroads, and these by locomotive roads and engineering skill proportionate to the vast operations of the present time.

We purpose, however, to glance at the history of one individual intimately connected with the prosperous development of this great source of American wealth—of one whose energy largely contributes to the comfort of millions of American citizens to-day.

Asa Packer was born in Groton, New London County, Connecticut, in the year 1806. His grandparents and parents were respected citizens and industrious people. Asa only enjoyed limited opportunities for an education, but he made every effort to improve his store of information. He was diligent and faithful in his studies, and had the confidence of his associates.

As soon as he was of an age to labor a situation was procured for him in the tannery of Mr. Elias Smith, of North Stonington. Ere long, despite his youth, the tanner came to regard him as a confidential friend and adviser, and if death had not taken his friend, doubtless Asa would have become a partner in the establishment.

During Mr. Smith's last illness Packer was his trusted manager, and after the hours of business, his sympathizing friend and companion.

After Mr. Smith's death, young Packer engaged himself to a farmer named John Brown. This man was of strong character, and Asa passed a year in his employ. The firm common sense and great argumentative talents of his employer no doubt gave strength and vigor to the young man's developing energies. After this year he went to Mystic and attended school, being fully aroused to appreciate an education, and studying earnestly and steadily, he became quite proficient in the common, practical branches of learning.

Now, being seventeen years old, the keen New England enterprise manifested itself in his nature. He must begin life in earnest. Pennsylvania at that time was attracting the attention of men farther east. Swept into the current setting westward, young Packer, knapsack in hand, and a few dollars in his purse, set out on foot for Susquehanna County, Pennsylvania. Arrived at the town of Brooklyn, he engaged as an apprentice with a carpenter. He served his time and became master of his trade. He worked steadily for several years, investing his savings in a lot of wild land at the upper waters of the Susquehanna. He then entered upon the hardy, free adventurous life of a pioneer. He made a clearing, reared a small homestead, and brought thither his bride. She proved worthy of his choice. Her ready hands and willing heart made her a helpmeet for an enterprising man.

Here Asa lived eleven years. When he went out from this place it was to enter a more populous district to obtain money for taxes and articles of household comfort. The nearest point from his farm where he could be sure of money in return for his labor was an hundred miles away in the Lehigh Valley.

In the Valley of the Lehigh, two men, representatives of working capital in Philadelphia, were pushing ahead improvements to open up the timber and mineral wealth of that section. Asa reached this district after a wearisome journey on foot through rough mountain-ways and along lonesome stretches of forest country. He took his place among a crowd of workmen as a co-laborer with them, but his prying, reasoning intellect, as he surveyed the rich productiveness of the country in coal, iron, timber, lime and slate, suggested to him that

at no far-off time immense lines of transportation would spring up at that very centre. Accordingly, he disposed of his farm and brought his family for permanent settlement to the Lehigh Valley.

He had but a few hundred dollars. His capital consisted of a stout heart, strong arms and an active brain. His first and second summers were employed in boating coal from Mauch Chunk to Philadelphia in his own craft. His energy brought him to the notice of the navigating company of the Lehigh coal, and he advantageously connected himself with it.

About this time Asa visited home and interested his brother and his uncle in his account of the mineral wealth developing near his home. They returned to the Lehigh with him, investigated for themselves, and the uncle being too old to engage in active business, advised the brothers to unite their means and he would assist with money if they needed. His views coincided with their own, and the firm of A. & R. Packer, dealers in general merchandise, from the start, entered upon a large and profitable business.

This house soon became known for its immense transactions on the Lehigh and Schuylkill rivers.

Through this extensive coal-mining business Asa became associated with Commodore Stockton, a man who afterwards ably assisted Mr. Packer in the great enterprise of his life—the Lehigh Valley Railroad.

Up to 1850 the transportation of the coal in the Lehigh valley had been altogether by water, and Mr. Packer's suggestions concerning a railroad were not favorably received.

After the usual delay in arguing and urging *pros* and *cons*—Mr. Packer meanwhile becoming owner of a controlling portion of stock—the work was undertaken. In regard to this enterprise, he was as the strong, active water-wheel that puts into motion and keeps going the other machinery, and he threw so much vigor into the work that others were inspired—among them Commodore Stockton, of the New Jersey Central Railroad Company—and came to his assistance and made him large advances on his stock and bonds.

The road was a success. Within three years after the opening of the railroad from Mauch Chunk to Easton, with connections, which made a railroad route from the valley to Philadelphia, as well as New York, Mr. Packer suggested the extension of a line of railroad into the valley of the Susquehanna, and up that valley to the great table lands of the State of New York, there to connect with the New York and Erie Railroads. This would bring the anthracite coal region within the system of roads leading north and west to Lakes Ontario and Erie, and also afford a direct route, by connecting with the Catawissa and Erie roads, to the great West.

In due course of time the whole of this stupendous conception was placed in working order, being of incalculable benefit to the whole country. His railroad enterprise added millions of dollars to Mr. Packer's fortune.

Now comes the crowning glory of his works. On his return from Europe, in 1865, he announced his intention of founding, in the Lehigh Valley, an educational institution, which should supply to its young men the means of obtaining that knowledge of which, in early life, he realized the need. The branches of education to which Mr. Packer designed that the institution should be devoted, were civil, mechanical and mining engineering; general and analytical chemistry, mineralogy, metallurgy, analysis of soils and agriculture; architecture and construction; all of them branches of knowledge of exceptional value in that vicinity. In carrying out this noble benefaction, Mr. Packer gave first a woodland park, sixty acres in extent, and afterwards the sum of five hundred thousand dollars.

This institution, known as Lehigh University, was formally opened in 1866, and its success was marked and gratifying to the heart of its founder. No sect or class is excluded. It is self-sustaining, its free scholarships being offered as prizes to be competed for by all students.

As a proof of the esteem in which this enterprising man has been held by his acquaintances, he has been—as often as he would accept—elected to different public offices.

When Asa Packer set out from Mystic, Connecticut, on foot, to make a journey to Pennsylvania, it is not probable that his worldly possessions amounted to more

than twenty dollars; not so very many years afterwards—without wronging men by gamester's speculations—his fortune was estimated at *twenty million dollars*; and that wealth is but a fraction of the riches which he helped to open up for the country in the Lehigh valley.

Mr. Packer's career adds lustre to the record of our glorious land, where honor, fame, wealth and position are not entailed for elder sons and the offspring of crowned heads.

The Old Man Eloquent.

One great secret of Henry Clay's powers as an orator consisted in his ability to draw men's hearts to him. Every eye lighted when he appeared, and friend and foe were borne down before him. It was of no use trying to hate him, or to set up one's will powers in opposition to charming.

He was defending a man, one day, who had been arraigned for murder. "Mr. Clay is going to address the jury," whispered one man to another. "The villain ought to be hung, but he has got a wife and child, and his old mother is here in court, and that is enough for Clay. He'll have the jury blubbering in half an hour," he added impatiently.

They were heavy, stolid looking men, and appeared as likely to be moved by sensibility as the foundation stones of the court house. But it was not many minutes before the great hulking fellows were sobbing and mopping their faces over the sorrows of the prisoner's family. Even the Court, blew its nose, vigorously, over the case of the old woman whose desolateness was depicted with so much pathos, and the audience generally sobbed in concert, though all the sensible ones knew well enough they were "sold." Of course, the "poor prisoner," was acquitted, and allowed to plague his family for another term of years.

Mr. Clay was present, one day, at a fair, which he was called to address.

"I wonder if nobody in Kentucky can make a speech but him," said a lady petulantly, "I am sure I didn't want to hear him. My husband is a democrat."

There were probably many others of like mind in the crowd, but Mr. Clay proceeded, and spoke with such a mingled air of gallantry and drollery, with touches of pathos at times, that all were carried away with him. His compliments to the ladies on their particular exhibits, his high praise of home manufacture, generally, and the displays at that fair in particular, made many hearts flutter with pride and pleasure.

Said the Democrat's wife to her friend: "There is no use trying to not like him because he is a Whig, is there Jane? I suppose John won't like it, but I am going to give him my blankets!"

Jay Cooke.

The father of Jay Cooke was one of the pioneer settlers of Ohio—a rugged, self-reliant, energetic lawyer, influential and of respected character. Jay was started out to earn a livelihood at the early age of thirteen years. He was active, quick at figures, his memory trustworthy, his tact and ability worthy of note. The boy was in the employ of different mercantile houses in Sandusky until seventeen years old. He then went to Philadelphia, and became a clerk in the Congress Hotel of that city. This was in the year 1839. Among the boarders at the hotel was Mr. E. W. Clarke, a senior partner in the banking-house of E. W. Clarke & Co. About Jay Cooke there was a certain quick, exact tone and manner about him that once seen could not readily be forgotten. His mind fastened itself upon the matter in hand, so that he seldom had to receive directions twice upon the same subject. He rose so rapidly in the estimation of his employers, and became so essential to them in their business affairs, that in five or six years they deemed it advisable to take him into partnership, and he became the firm's business manager.

There were branch houses in New York, St. Louis and Boston, and the business which they conjointly transacted was immense. The profits were large, and in a few years Jay Cooke became a rich man. In 1853, with a fortune of \$100,000—then esteemed quite an immense one—he retired to private life and the society of his family. But after seven years' rest, in 1860, in connection with William G. Morehead, a wealthy capitalist, he

resumed the banking business in Philadelphia. The highway to wealth was laid open to Jay Cooke in his negotiation of the original seven-thirty loan.

You know how it was: The Great Rebellion had broken out, and there was an unprecedented demand for money for the purchase and movement of every variety of war material. The demand for a single month often over-balanced the receipts of the Government for a year of ordinary times. To meet this demand, in July and August of 1861, Treasury notes were issued to the amount of \$27,000,000. This was only considered a temporary resource until the sale of the bonds of the loans authorized by the Act of Congress, July 17th and August 5th should supply the Government with funds. The bonds met with only a limited sale, and on the 19th of August of the same year, the banks of Boston, New York and Philadelphia agreed to advance \$50,000,000 in coin to the Government, receiving for it bonds having a three years' run, and bearing seven and three-tenths per cent. interest. On the 1st of October the banks agreed to advance \$50,000,000 more, and on the 16th of November a negotiation was affected for \$46,000,000, which was the last loan paid in coin, as the banks suspended specie payment the following December.

As the banks suspended on the specie, the brokers grew timid, and Jay Cooke conceived the idea of appealing to the industrial people. Secretary Chase appointed him subscription agent. He advertised, he argued the advantage of these bond investments; he appealed to the patriotism of the people. He threw them into this plan his wonderful force and vigor of character. His long letters, filled with earnest zeal, appeared in obscure as well as widely-circulated publications of the press. The greatest facilities for purchasing was offered, and the financial problem was solved. The demand soon exceeded the supply. Our patriots parted with their substance and their sons to maintain the Union unshattered.

No victory during the war—unless we except the surrender of Richmond—reassured the sinking public mind like the problem of finances so matchlessly solved by Jay Cooke.

The brokers, who before had felt suspicious in regard to the bonds, now were glad to buy and sell them for Jay Cooke & Co., at half their usual commission.

This successful enterprise made Jay Cooke's fortune secure. It won for him the confidence of the Secretary of the Treasury, and made his banking-house known from one end of the country to the other, and drew to it a large share of the business which otherwise might have fallen into other hands.

In 1862 Mr. Cooke opened a branch house at Washington, D. C., to be nearer to the treasury, and to facilitate transactions with the Government. The two establishments made popular the first five-twenty loan, and the three series of seven-thirties.

The house of Jay Cooke remained intimately connected with the financial bureau of the government until the end of the war. Mr. Cooke's immense wealth has been mainly gathered from commissions.

In the rush and roar of the national tumult; in the confusing cries of buyers and sellers, mixed with the wild uproar of bloody, fierce intestinal warfare, if Mr. Cooke did not have time to sufficiently analyze the effect of the prolonged national debt, it is not to be wondered at—there is no picture in the wide, wide world without some spot or blemish; and party spirit, while pecking at flaws, forget to yield honor where honor is due.

Doubtless, our national banking system is the most perfect which any country has known, and Mr. Cooke played an influential part in bringing it into successful operation.

In 1867 a second branch of the house of Jay Cooke & Co. was established in New York, and William Pitt Cooke, a shrewd, cautious brother of the great banker, was made its manager. The Washington branch was entrusted to a younger brother, Henry T. Cooke. The influence of these three houses was unparalleled in the financial history of any country.

Jay Cooke is credited with very many benevolent acts upon a grand scale, especially as in regard to aged clergymen of his own religious faith.

Mr. Cooke is married and has a family of children. He has a luxuriously furnished house at Chelton Hills, a little ways out of Philadelphia, and his wealth is estimated at \$15,000,000.

Francis Marion.

When shall we ever find a more fitting season to ex-hume the memory and do justice to the heroes of the Revolution than in this centennial year? While we strive to realize the privileges of our time and country, we need to send the prayer up from our soul's depths, "Lord, keep our memory green. Tell it over and over to our children, stamp it indelibly upon their minds, that to God and the suffering, heroic men and women of the Revolution, we owe the blessings of the present hour."

To-day we chance to turn the page, and our glance rests upon the pure, brave face of General Francis Marion. He was born in 1732, in Winyah, near Georgetown, South Carolina. His parents were of French descent, and fleeing from persecution in their own country, they came to America. Francis' boyhood was passed in assisting his father on the plantation. His education was limited. He early manifested a desire to go to sea, but his first voyage proved so disastrous with shipwreck and starvation, that pursuit of a livelihood in that direction was abandoned, and he became a planter.

At the age of twenty-seven, he was given a lieutenant's commission among the troops organized to fight the Cherokee Indians. His captain was William Moultrie, afterwards general in the Revolutionary army. Marion received a promotion to a captaincy ere the campaign was over; but returned again to the life of a planter after the subjugation of the Indians.

When the struggle began between the colonies and England, he was one of the first to volunteer. He was unanimously chosen captain. He was soon major of a regiment, and in the spring of 1776 he was ordered to fortify Sullivan's Island. Of strong palmetto logs they built a structure, and named it in honor of his commander, Fort Moultrie. On the 2d of June, this fort was attacked by the British fleet under Sir Peter Parker, but Marion stubbornly fought and repulsed them. For his gallant conduct here he was made lieutenant-colonel of his regiment.

Then followed the unfortunate attack upon Savannah, the investment of Charleston, and its subjugation by Sir Henry Clinton. After the capture of Charleston, South Carolina was rapidly subdued, and the British established a number of forts over the State. Tarleton, with his invincible cavalry, raided about the country. Clinton, at first severe and threatening, finally offered pardon to those who would assist in restoring the authority of the king through the demoralized colonies.

South Carolina was so soon and so completely subdued that it seemed as if the patriot cause was entirely dead throughout the colonies. Matters were in this desperate condition when Marion, not quite well from a fractured ankle, set out to join the little army, collecting in North Carolina under DeKalb.

On the way up, he remarked to an acquaintance: "If the enemy should be moved to play a kind and generous game, they will ruin us, but if they go on in their present course of treating the people cruelly, that state of conduct will ruin them and save America." Soon after this, Gates, through over assurance, was defeated at Camden.

Marion, with his small force, hearing that the Tories were massing in his vicinity to attack him, galloped forward to a place of safety, and then halting, made this gallant appeal to his men:

"I want to know your minds; my own is already made up. My life may last but a moment, but I consider that to fill that moment with duty is enough. To guard my country against slavery seems now my greatest duty; therefore, I am determined that while I live she shall not be enslaved. That wretched state may be hers, but my eyes shall never behold it. Never shall she clank her chains in my ears, and, pointing to the ignominious badge, exclaim, '*It was your cowardice that brought me to this!*'"

His spirit, his enthusiasm, inspired his comrades. They took oath to stand by him; and there were about thirty of them, men of the best families, mounted on good steeds. This was the origin of the celebrated, brave "Light Brigade."

Their meeting place was the close recesses of the intricate swamp, where only those familiar with its features could hope to reach it. From this point, with this band, he dealt a startling blow to the enemy.

His scouts reported that a British force of ninety men with a large number of American prisoners, were on the

way from Camden to Charleston. He resolved to rescue them. He made a night attack, released the prisoners, and captured nearly all of the British soldiers. He expected the rescued men to join him—what then was his disgust when they, considering the cause lost, refused to comply.

But his successful exploit allowed him to equip his company in a much needed manner, and also left a surplus with which to arm new recruits. Soon after this he made another sally upon a party of forty of the enemy's soldiery, and secured them and their arms without firing a shot.

His next project was to buy up all the old saw blades which he could obtain, and, setting the smiths to work, he had made a large number of broadswords, which done much service through the war.

The British officers were astounded when news of these daring exploits reached them. They had supposed that all opposition to royal authority was virtually at an end.

Governor Rutledge sent Marion a commission of Brigadier-General, and the disheartened patriots began to shake off their stupor, and recruits poured in until the "Light Brigade" numbered two hundred daring men. Now here, now there, this body of patriots made bold and staggering blows upon the enemy. Superior forces went out against him, but so secret and rapid were his movements, that while they searched for him where he was last seen, he proved to be miles away, dashing like a thunderbolt where least expected. This body of men were all of the better class, superior horsemen, well armed and well mounted, but generally ragged and half starved.

Rest assured that such a brilliant example of daring and patriotism roused the Colonists to act in concert. Armed bands sprang into existence in every direction, and England began to realize that a slumbering lion was awakened, and might be dangerous.

As to General Marion's character, it is written that he was a man of pure principles and of a kind nature. He allowed no cruelty in the treatment of the prisoners in his hands. No planter had cause to complain of lawlessness on the part of the "Light Brigade." He was brave and daring, yet prudent, and with the simple manners of a child.

When a British courier, with a flag of truce, was sent to Marion to negotiate an exchange of prisoners, he was fated to be astonished beyond measure. He had pictured a stalwart and imposing warrior, with martial front and imperious bearing, but in Marion he beheld a swarthy, smoke-dried little man. Instead of flaming regimentals and glistening belts and fringes, the hero had barely enough of homespun garments to cover his nakedness. In place of ranks of tall, uniformed soldiery, were a handful of ragged militia-men, some of whom were roasting potatoes in the coals, while others lay asleep among the logs with their homely accoutrements near them.

After the officer's surprise had worn off sufficiently to permit of speech and action, their business was satisfactorily arranged, and he was invited to dine with them.

His searching eye could discover neither pot, pan, nor Dutch oven; but dinner was served, nevertheless. Sweet potatoes raked out from the coals, and the ashes brushed off, comprised the bill of fare. Some of the best of these were piled upon a piece of bark and placed between Marion and the officer. All the excuse that the patriot made was this: "Our dinner, I fear, may not be palatable to you, but it is the best we have."

The Briton laughed, and insinuated that this, probably, was a "picked up" dinner. The reply was:

"We are not often so fortunate as to have enough like this."

"Heaven!" exclaimed the officer, "then your ample pay compensates, no doubt, for your meagre fare."

"We receive not a cent," was brave Marion's reply—"not one cent, sir."

"Why, General," exclaimed his guest "how do you stand it?"

"Minor things like these," was the response, "are in subjection to the cause."

"But," went on the Englishman, "how could I reconcile myself to a soldier's life on General Marion's terms—all fighting, no pay, and only potatoes for provisions?" Then came the patriot's matchless reply:

"Why, sir, it is the heart—the heart is all, and moves all. When *that* is interested the limbs and muscles do not mind toil." Let a man be wholly in love with such a beauteous sweetheart as Rachel, and what does he care for fourteen years' servitude like Jacob's, if he but win the object of his soul in the end? I am in love, and my sweetheart is *Liberty*. What are the pomps of London and Paris compared with the beauties of these woods and wilds, if I but win her?

"Oh, to have no vain monarch riding over me in gilded coaches; no host of excisemen or tax-gatherers robbing and insulting me; instead to be my own master, my own prince and sovereign, gloriously preserving the dignity of my nation; pursuing my true happiness; planting my rich vineyards, and eating the luscious fruit; sowing my fields and reaping my golden grain, with millions of my brothers and countrymen, equally free and happy with myself in these privileges and unspeakable blessings. *This* is our object and the stimulus to labor."

"It certainly sounds like a happy state of things," returned the Briton.

"Happy, indeed," was the reply, "I choose to fight for such blessings for my country, and feed on roots rather than keep aloof, if by so doing I might wallow in the luxuries of Solomon; for now, as I walk the soil that gave me birth, I feel that I am not unworthy to tread it. I look upon these beautiful and venerable trees, and feel that I do not dishonor them. I think of my sacred rights, and rejoice that I have never deserted them; besides, I look forward to the long ages and generations yet to be, and glory in the thought that I am fighting their battles for them. The children of the distant future may never hear my name, but I am glad that I can fight for them, and leave them the priceless dowry of *Liberty*."

That honest English officer dropped his head abashed; and when he returned to Colonel Watson, his serious demeanor led to the question:

"Has General Marion refused to treat with you on the subject of exchange?"

"No, sir."

"Has Washington defeated Sir Henry Clinton?"

"No, sir."

"What can be worse than these?"

"Why, sir, I have seen an American general and his officers, without pay, and almost without clothing, living on roots and drinking water, and *all for liberty*. What chances can we have against them?"

Colonel Watson was not very well pleased with this reply, but the young officer, without delay, threw up his commission and left the service, his heart forbidding him to array himself against such men.

Marion stated once his method of dealing with cowardly troops that ran away: He should not hurl invectives after them; he should run with them, and *faster* than they, if possible, getting to the *front*, and encouraging them to rally.

He made no effort to capture deserters. Their punishment lay in the contempt that would meet them from all true, worthy patriots.

Marion, with Lee's Legion, was sent during the war to lay siege to a strong fort. The bluff upon which the fort rested was forty feet high, and a forest lay all around. The patriots had no cannon, but in one night they cut and piled up logs until they had erected a tower so high that the riflemen could pick off the garrison at their leisure. The fort capitulated directly.

Then followed the capture of Fort Motte. This structure had been erected upon the plantation of a widow lady named Motte, and her palatial residence in the midst of the British works had been taken for the officers' quarters, while the lady herself had been forced to lodge in the negro houses. Marion saw that he could not compel the surrender of the garrison without setting fire to the house. On learning this, Mrs. Motte sought him out, gave her consent with the heroism of the times; even furnished him with the iron-tipped arrows, with inflammable material attached that accomplished the work, nobly exclaiming:

"What are my small concerns, when the welfare of the nation is at stake!"

This garrison surrendered. Then he compelled the evacuation of Charleston. The Light Brigade also took part in the bloody battle of Eutaw Springs.

General Marion's sentiments were that cruelty to man

was no way to show gratitude to God. He denounced the proposed plan of confiscating the property of the Tories after the war. He thought that it would foster ill-feelings, but, while in the Legislature, he plainly expressed his opinion of those who had been so ignorant of their state and standing as to join the British, or sneak entirely away from the patriot cause.

After the war his choice would have been to retire from public life, and quietly settle down upon his plantation, but his countrymen wished to retain him in public service.

After the liberty which he prized had been bought with much of the best blood of the colonies, he married Mary Videaw, and passed the remainder of his useful life in the quiet of a peaceful home. He was a sincere Christian, and once being told that the Methodists and Baptists were making great progress in South Carolina, he exclaimed: "Thank God for such good news."

"General," continued his friend "what is the best religion?"

"I know of but one religion," was the earnest response, "a hearty love of God and fellow-men."

When his last illness seized him, he said to his wife who was weeping beside his couch:

"My dear, do not weep for me. I am not afraid to die, for since coming to man's estate, I have never intentionally done wrong to any one." These were his last words.

"As a patriot officer," said General Greene, "history never furnished his equal."

And if, to-day, Francis Marion's spiritual vision can pierce the mists of earth, he would see the vineyards, the fields, the forests and vales of America, the country which he so much loved, sunning itself in the blessings of liberty and equal rights for which he struggled and fought, together with those brave, self-sacrificing souls that lived a hundred years ago.

Alexander Hamilton.

Alexander Hamilton was, next to Franklin, the most consummate statesman among the band of eminent men who had been active in the Revolution, and who afterward labored to convert a loose confederation of States into a national government. His mind was as plastic as it was vigorous and profound. It was the appropriate intellectual expression of a well poised nature whose power was rarely obtrusive, because it was half concealed by the harmonious adjustment of its various faculties. It was a mind deep enough to grasp principles, and broad enough to regard relations, and fertile enough to devise measures. Indeed, the most practical of our early statesmen was also the most inventive. He was as ready with new expedients to meet unexpected emergencies as he was wise in subordinating all expedients to clearly defined principles. In intellect he was probably the most creative of our early statesmen, as in sentiment Jefferson was the most widely influential. And Hamilton was so bent on practical ends that he was indifferent to the reputation which might have resulted from a parade of originality in the means he devised for their accomplishment. There never was a statesman less egotistic, less desirous of labeling a policy as "my" policy, and one of the sources of his influence was the subtle way in which he insinuated into other minds ideas which they appeared to originate. His moderation, his self-command, the exquisite courtesy of his manners, the persuasiveness of his ordinary speech, the fascination of his extraordinary speeches, and the mingled dignity and ease with which he met men of all degrees of intellect and character, resulted in making his political partisans look up to him as almost an object of political adoration. It is difficult to say what this accomplished man might have done as a leader of the Federal opposition to the Democratic Administrations of Jefferson and Madison, had he not, in the maturity of his years and in the full vigor of his faculties, been murdered by Aaron Burr. Nothing can better illustrate the folly of the practice of duelling than the fact that, by a weak compliance with its maxims, the most eminent of American statesmen died at the hands of the most infamous of American demagogues.

Whenever you are in doubt which of two things to do, let your decision be for that which is right. Do not waver, do not parley; but square up to the mark and do the right thing.

Remarkable Blind Characters.

Uldaric Schomberg, born in Germany, towards the commencement of the seventeenth (17th) century, lost his sight by the small-pox, at the age of three; but as he grew up he applied himself to the study of the *belles lettres*, which he afterwards professed with credit at Altorf, at Leipsic, and at Hamburg.

Bourcheau de Valbonais, born at Grenoble in 1651, became blind when very young, soon after the naval combat at Solbaye, where he had been present. But this accident did not prevent him from publishing the "History of Dauphine," in two volumes, folio. He had made profound researches into the history of his province; and, besides the work just mentioned, published a "Nobiliare of Dauphine."

Dr. Nicholas Sanderson, Lucasian Professor of Mathematics in the University of Cambridge, was one of the most remarkable of his time. He was born in 1682, at a small town in the county of York, and died at Cambridge in 1739, at the age of fifty-six. He invented a table, which has since been greatly improved, for teaching arithmetic palpably to the blind. Then there is Dr. Blacklock, of whom every one has heard. Dr. Henry Moyes professed the Newtonian philosophy, which he taught with considerable success as an itinerant lecturer. He was also a good chemist, a respectable mathematician, and a tolerable musician.

Mr. Phelof, of Colmar, who lost his sight when very young, in consequence of a violent ophthalmia, composed a great deal of poetry, consisting chiefly of fables, some of which have been translated into French by M. Degerando. Among the pupils of this learned blind man may be mentioned Prince Schwartzemberg and Prince Eismenberg. He died at Colmar, 1809.

Weisseburgh, of Mannheim, became blind at the age of seven. He wrote perfectly, and read with characters which he had imagined for his own use. He was an excellent geographer, and composed maps and globes, which he employed both in studying and teaching this science. He was the inventor of an arithmetical table, differing but little from that of Sanderson.

The blind man of Puisseaux must be known to all who read Diderot's celebrated "Lettres sur les Aveugles." He was son of a professor of philosophy in the University of Paris, and had attended with advantage, courses of chemistry and botany at the Jardin du Roi. After having dissipated a part of his fortune, he retired to Puisseaux, where he established a distillery, the products of which he came regularly once a year to dispose of. There was an originality in everything that he did. His custom was to sleep during the day, and to rise in the evening; he worked all night, "because," as he himself said, "he was not then disturbed by anybody." His wife, when she arose in the morning, used to find everything perfectly arranged. He spoke very sensibly of the qualities and defects of the organ in which he was deficient, and answered questions put to him with much justness and discrimination. To Diderot, who visited him at Puisseaux, he put some very singular questions on the transparency of glass, colors, and such like matters. He asked if naturalists were the only persons who saw with the microscope, and if astronomers were the only persons who saw with the telescope; if the machine that magnified objects was greater than that which diminished them; if that which brought them near was shorter than that which removed them to a distance. He believed that astronomers had eyes of different conformation from those of other men, and that a man could not devote himself to the study of a particular science without having eyes specially adapted for that purpose. "The eye," said he, "is an organ upon which the air ought to produce the same effect as my cane does upon my hand." He possessed the memory of sounds to a surprising degree, and recognized by the voice those whom he had only heard speak once. He could tell if he was in a thoroughfare or in a *cul-de-sac*, in a large or in a small place. He estimated the proximity of fire by the degree of heat; the comparative fullness of vessels by the sound of the liquor in falling; and the neighborhood of bodies by the action of the air on his face. He employed characters in relief, in order to teach his son to read, and the latter never had any other master than his father.

M. Huber, of Geneva, an excellent naturalist and author of the best treatise extant on bees and ants, was

blind from his earliest infancy. In reading the descriptions of these insects, we can scarcely persuade ourselves that they are not the production of a singularly clear-sighted man, well versed in this branch of natural history. In executing his great work, however, M. Huber had no other assistance than what he derived from his domestic, who mentioned to him the color of the insects, and then he ascertained their size and form by touch, with the same facility he would have recognized them by their humming in the air. This laborious writer has also published a valuable work on education.

Francis Lesneur, born of very poor parents at Lyons, on the 5th of August, 1766, lost his sight when only six weeks old. He went to Paris in 1778, and was begging at the gate of a church, when M. Haüy, discovering in the young mendicant some inclination to study, received him, and undertook the task of instructing him, at the same time promising him a sum equal to that which he had collected in alms. Lesneur began to study in October, 1784. Six months after he was able to read, to compose with characters in relief, to print; and in less than two years he had learned the French language, geography, and music, which he understood very well. His intelligence and penetration were indeed surprising, and he was among the blind what Massien has since been among the deaf and dumb. It is painful to add that he proved unthankful to his benefactor and master, to whom he owed everything; and that by his conduct he merited the reproach of ingratitude, a vice which, with some reason, has been charged against the blind generally.

Avisse, born in Paris, was one of the most distinguished *élevés* of the institution. His father, who kept furnished lodgings in the Rue Guenegand, intended him for the sea, and he embarked, when very young, on board a vessel fitted out for the slave trade, in the capacity of secretary or clerk to the captain; but he was struck by a *coup de vent* on the coast of Africa, and lost his sight from the violent inflammation which ensued. On his return, his parents procured his admission into the institution for the blind, where, in a few years, he became professor of grammar and logic. He produced a comedy in verse, in one act, entitled "La Ruse d'Avenle," which was performed; and several other pieces, which were all printed in one volume, in the year 1803. He died before he had completed his thirty-first year, at the very time when the high hopes entertained of him were being realized.

Nor have the blind been less distinguished in the practice of the arts than in science and literature. Many instances of their eminence in this respect may be mentioned. Indeed, the want of sight seems little or no impediment to manual dexterity. Stengel mentions a young cabinet maker of Ingolstadt, who, having lost his sight by an explosion of gunpowder, amused himself by constructing pepper-mills, which he made without the use of any other instrument than a common knife, and executed with so much exactness and elegance, that they were thought worthy of a place in the gallery of curiosities at Munich, where they may still be seen. Sir Kenelm Digby has stated several extraordinary particulars of a preceptor of his son, who was so completely blind, that he could not distinguish the light of noon-day from midnight. He surpassed in skill the ablest players at chess; at long distances, he shot arrows with such precision as almost never to miss his mark; he constantly went abroad without a guide, and frequented most of the promenades; he regularly took his place at table, and ate with such dexterity, that it was impossible to perceive he was blind; when any one spoke to him for the first time, he was able to tell with certainty his stature and the form of his body; and when his pupils recited in his presence, he knew in what situation and attitude they were.

Giovanni Gambasio, of Volterra, lost his sight at twenty, and remained ten years in this state, ignorant of even the elements of sculpture. All of a sudden, however, "the desire of making a statue came upon him;" and having handled in every way a marble figure of Cosuro de Medici, he formed one of clay, so extremely like, that it astonished all who saw it.

NO MAN'S life is free from struggles and mortifications, not even the happiest; but every one may build up his own happiness by seeking mental pleasure, and thus make himself independent of outward fortune.

THE VACATION OF AN ORNITHOLOGIST.

An ornithologist looks forward to holidays and vacations from business as welcome seasons of uninterrupted work. The most careful plans are laid long beforehand to get the utmost amount of valuable results with the least expenditure of time, regardless of labor and trouble; and he reckons the value of the vacation by the work he has done, not by the rest he has taken. Yet it is really the best of rest to him, and every business man ought to have a similar avocation, which shall

with brambles, I listened to the varied notes of the birds, flitting about on every hand (see cut), with the keenest enjoyment. Any appellation for the forlorn little station to which I returned in the course of an hour, would be a misnomer, for it looked, felt, tasted, and smelled of oil—thick, greenish, black, villainous stuff, but the best lubricator in the world. The whole country thereabouts is on edge. So many high hills are there, that there is scarcely room for valleys between, all densely covered with a primeval forest of both hard and soft woods, and jungles of bushes and brambles, knit to-



"LEANING ON AN OLD RAIL FENCE I LISTENED TO THE VARIED NOTES OF THE BIRDS."

take him out of doors and away from the pavements every spare day. My collection lacked in Southern birds, and accepting the invitation of gentlemen of the West Virginia Oil and Oil Land Company to make their offices my home, I went to Petroleum, Ritchie county, West Virginia, which is on the Parkersburg division of the Baltimore and Ohio Railway.

Upon arriving at the station, I wished to reconnoitre a little before deciding to make this place the scene of my wanderings. Therefore leaving my carpet bag and equipments in the station, I started out. I, however, did not wander far, as it was late in the afternoon; but, leaning on an old rail fence, overgrown

together with trailing vines and creepers, the haunt of rattlesnakes, *et al.* It is the well marked scene of a geological riot long ago, and the streams, searching out the weakness of the shattered rocks, ever betray the savagery of nature, which the luxurious vegetation is making every effort to conceal.

In such a country, then, I spent nearly four weeks in collecting, with marked success. The first day, however, was just after a cold storm, and I saw none but the commonest, such as robins, bluebirds, blackbirds, crows, golden wing, and song sparrows. The next day I was a little more successful, for I added to my list a king-fisher, turtle dove, a mocking wren, a blue-gray gnatcatcher, and others. From this time every day

brought varieties. The king-fishers do not seem abundant, but a few nest in a steep bank a mile or two down the road, in company with another troglodyte—the rough-winged swallow. The burrows of these two birds are very different, although it is not always easy to tell their entrances apart. The king-fisher goes straight in several feet and lays her eggs on three or four straws; if anything at all, (it is the British species that builds its nest of fish bones,) while the swallow pierces her narrow tunnel only a few inches, and usually makes an elbow in it, at the end of which a little chamber is hollowed and a warm nest of straw and feathers tucked in. This is also the habit of its congener, the common bank swallow, and all three of them lay pure white eggs, like most birds that nest in dark holes—the woodpeckers and owls for instance—though there seems no direct connection between the facts.

How the king-fisher happened to be chosen to figure in that gentle legend of Halcione, or rather how such a delightful tradition of his origin ever arose, is a wonder to me, for he is associated with anything but quiet and repose, and the canoeist on an American river would regard the presence of our *Ceryle Alcyon* as an indication of rough water, however the *gubernator* of a Roman tireme might have welcomed the birds. He is, note, too, as noisy as can be, and the immortal Alexander Wilson, whom nowadays we are too near forgetting, described it perfectly when he compared it with a watchman's rattle.

Just where I found these nests Goose Creek makes a sharp bend to the right, sheering away from a high wall of rocks and plunging down some lively rapids. On the right bank there is a little flat, thinly covered with bushes and young trees. Amid these were many birds, and it was a favorite resort of mine throughout the whole vacation. Here came the shy little Carolina chickadee, a miniature of our northern black crested one, with his constant friends, the black and white creepers and the "sapsuckers," the sad wood pewees, whose slender plaint always seems to me significant of blighting sorrow courageously overcome by moral strength; the loquacious bluejay, more brilliant in this warm latitude than ever I had seen him North. You hear many minstrels that you cannot see. Down the creek a field sparrow is still singing creep, cree-ep, cree-eep, catch 'em, catch 'em, catch 'em, as mother tells me he sang it when she was a girl. Up stream, the few clear notes of the mocking wren, which are all his own, ring out upon the air, and on the other side a cat bird is personating a whole choir. Business-like robins are discussing with one another; angry chenicks are bustling about in great agitation, making the dead leaves fly from under the briers as though a small tornado was dispersing them; a pair of gold-finches are quarrelling loudly out there by a dead tree, and altogether this little grove seems a sort of avian exchange.

Hark! What a keen, strong, parrot-like whistle from that lofty hill! I splash through the creek, scramble up the rocky wall, clutching the trailing hemlock roots, and forgetting the things which are behind, press forward towards the mark of the high calling of that strange bird on the hilltop. How soon he would stop if he knew whom his clarion was guiding! At last I see him—a brave looking bird, standing high upon his legs in the top of a tall ash, his head crested, his tail is long and restless; above he is a ruddy brown, below ash-white and yellow. I knew him—the great-crested fly catcher, first cousin to the kingbird. Down he comes, dead! I straighten him out, wrap him up tenderly and put him away in my trout basket. Then I sit down. There is little use indeed when collecting in the woods to move about much; the birds will come to you if you are quiet, just as surely as you can go to them. There is a different sort up here, less of the skulking bush and pasture lovers, and more of the dendricoline and open air birds, like this poor handsome fellow in my basket, and that hawk coursing over yonder ridge. Presently I hear a fine squeak overhead, and after a long search discover a pair of great catchers (*Poliophtila cerulea*) laying the foundation of their nests,

which is too elegant a structure to pass unheeded. It would just about fill a coffee cup, and a thimble would just about fill it. It is matted of various soft vegetable fibres and cottony substances, particularly downy within and encrusted outside with green and gray lichens and bits of wood moss. The bird itself is a tiny, slender little sylph, blue-grey above and white underneath, with black bill and feet. They went away, and returned again and again, always both together, with their mouths full of fluffy material. I wanted the *Poliophtilas* badly, but hadn't the heart to shoot them in their busy bliss; so I left them and they

"Perfected all their labor of love,
These joyous birds that I tell you of."

The next bird that attracted my attention was a warbling vireo, as firm and modest as Priscilla, the Puritan maiden. It is a common bird in all our New England elms in May, and I need not stop to describe it. The sight of the birds, together with the ways of the little architects I had just been watching, reminded me of a pair of red-eyed vireo that I saw in Connecticut the previous Summer. One had its beak full of a great wad of cotton, which it was trying to mat into a pellet, and at the same time to sing as loudly as its mate (with what musical success you may judge), very soon, of course, dropping the cotton. But the other vireo, snatching the morsel, also tried to go on singing, and dropped it, when it was caught by the first one, and so on till the wad was sufficiently compact, when they both started for the nest in great glee. Their intense happiness in all this was very amusing, being perfectly unconscious of my presence, although I stood within six feet of them. On the way down hill, a couple of Swainson's, or tawny thrushes, scudded away through the underbush, showing their rufous backs. Just on the edge of the clearing, I shot a warbler, intently gleaming in the tip-top of a tall sapling, which proved to be only a *Parula*, the blue, yellow back, readily distinguished by the bronze crescent between the shoulders of his blue mantle garb, the reddish, changing yellow on his breast, fading into white under the tail. A little further down I easily ascertained the whereabouts of a certain noisy cardinal, or "red bird," and crept cautiously up, for they are very shy, till near enough for my fine shot to take effect, and then fired hastily. Much to my surprise, he neither flew away nor came down, nor could I shake him down, but had at last to climb the tree and take him in my hand, when he awoke from his stupor (for he wasn't the least injured), and resisted manfully. His dark eye dilated and flashed indignant remonstrance; his great beak snapped viciously and unceasingly, as if he would eat me up, if only I were not so provokingly big; his strong claws clutched everything and held on desperately, but before the next night he felt better and sang in his cage. You know their song; how it is an endlessly varied succession of whistles, sharp, prolonged, three-cornered, like their beaks. But the following day brave cardinal died, and I stuffed his gay coat.

I had loitered so, that when I got home the purple martins were wheeling under and over the level rays of sunset, and before long a solitary whippoorwill began calling down by the creek. To-morrow I must work more whether or not I think less.

Every morning after this I was out early and home about noon, so as to have time to skin my birds before dark.

The preparation of the skins of birds is a matter of great delicacy. Immediately upon shooting a bird, I stopped the holes with cotton, as also the mouth and nostrils; if the bird was small, I thrust it head first into a cone of paper, prepared for the purpose, and folded the open end down. If any of the feathers got crumpled or bent, they were restored by dipping in hot water. I skinned my specimens by carefully making an incision from the lower end of the breast bone. As the skin loosened I inserted cotton to prevent its adhering to the body; and the legs were in succession stripped of their covering through the single incision made, cutting them off at one of the lower joints with my knife, leaving the feet attached to the skin. The tail in like manner was separated by cutting through the last joints of the vertebrae. Then suspending the body by a hook introduced into the lower part of the back or rump, I inverted the skin and carefully loosened it from the body. Every particle of muscle and fat with the brain being removed, I applied a preservative freely to the inside of

the skin and restored it to its proper shape. I deferred the stuffing process until my return home. This process is performed by introducing cotton through the mouth into the orbits and upper part of the throat until these acquire their natural shape. The rest of the skin is then filled, not quite full, with cotton, and the incision sewed up.

I was successful in securing many fine specimens to add to my collection, and my evenings were fully occupied in preparing them for removal.

The northward migration was at its height by the 5th of May, and I saw the best of the travelers. I explored all sorts of localities, one day going to the dense distant woods and great second-growth brier patches on the high hills; another following the windings of the creek, or some one of the many little "runs" which tumbled down ravines that an artist would love, for every turn brought out some new scene of picturesque loveliness. These narrow glens are beloved of the birds, and I find such warblers as the Kentucky, the hooded, the Blackburnian, the golden-winged, and the worm-eating, with the golden-crowned thrush, and his rarer brother, the water-thrush (*Seiurus ludovicianus*), for whose nest I searched unsuccessfully, though it must breed in this region. It was here, too, that I was most apt to find the least fly-catcher, and his brother, the green-crested Acadian fly-catcher, three of whose old nests I came across in one morning. Another species of this genus (*Empidonax*) is the yellow bellied. It has the same olive-green plumage as the rest, but differs in being bright lemon yellow underneath. Its song seems to me one string of coquetish questions, and is very pretty.

And now I am "at the end of my bobbin," and haven't begun to tell what I intended of this vacation in the Alleghanies, or the birds and bird-notes it added to my acquaintance; for though you may know of many birds, it takes time to really get acquainted with even a few. Perhaps, too, I preach too much.

Prince Albert's Wooing.

THE STORY OF QUEEN VICTORIA'S COURTSHIP.

Her uncle, the late King William IV., had done all in his power to prevent their union; no less than five other marriage projects had been planned for the young princess, and William, though he never mentioned the subject in her presence, took special pains to bring about an alliance between her and the brother of the King of the Netherlands—Prince Alexander. In consequence of these views, his Majesty endeavored to prevent the visit of the Duke of Coburg in 1836, but in vain; for the Duke came over to England with his two sons and remained at Kensington Palace nearly four weeks, as guests of Victoria's mother, the Duchess of Kent. King William died in 1837 and Victoria ascended the throne on the 20th of June. In 1839 Prince Albert of Coburg, accompanied by his brother, made that second journey to England which resulted so successfully. The three years which had passed since his last visit had greatly enhanced his personal attractions. Tall in figure, and manly in bearing, Albert was besides remarkably handsome, with an expression of mildness and innate refinement, joined to an air of intellectual superiority, which far surpassed any mere regularity of features.

"And so the Queen fell in love with him?"

"Very naturally—and on the 14th of October she made known to Lord Melbourne, who at that time stood at the head of the Whig Ministry, her resolution to offer her hand to Prince Albert definitely, and the next day he was called to an audience with the Queen. Victoria, in her lofty position, had found herself in a very peculiar embarrassment, for it was necessary that she should manifest to the Prince that his suit, if preferred, would be successful. This was a very delicate task for a young lady, but one which the Queen had solved with rare tact. Not very long before, at one of the court balls, she took advantage of the opportunity to hand the Prince her bouquet; the hint was not lost upon the gallant cavalier, and since his close-fitting uniform buttoned tightly to the throat did not permit of his disposing of this salam, so full of promissory happiness in the usual fashion, he quickly took out his penknife, cut a slit in the coat near the vicinity of the heart, and inserted therein the invaluable treasure. A second hint was very opportunely given. Albert having expressed his thanks and appreciation of his kind reception in England was asked by the

Queen: "If your Highness is pleased with this country would you be inclined to remain with us?"

"I would sacrifice everything in life to remain at the court of your Majesty," was the characteristic reply.

"When in compliance with the request above mentioned, the Prince repaired to the Queen's presence, after a short conversation she declared to him with a sincere expression of sincerity and affection, that he had won her heart, and that it would make her only too happy if he would make the sacrifice of his life in sharing it with her; for she said she also regarded it in that light, and the only thing which troubled her was the idea that she was not worthy of him."

"How I made such a declaration of love to him?"

"She was obliged to, for the position of a Queen demands imperatively that the marriage proposal shall come from her, undesirable as this may appear to those who look at it from the standpoint of private life, and who regard it as a privilege and a fortunate circumstance for women, that their hands must be sought for and need not be offered."

"And what was the Prince's reply?"

"The charming frankness of her Majesty quite captivated the heart of the favored young man, and he was entirely overcome. The marriage was solemnized February 15th, 1840."

Facts Concerning Giants.

In 1525, after his return from the circumnavigation of the globe, Ferdinand Magellan published a book, giving a full description of his voyage. In this book, he describes a race of giants which he discovered at the southern extremity of South America, in the country now known as Patagonia. He says that in stature, they were fully ten feet, and that they were very broad and thickset in proportion to their height. Subsequent travelers, such as Herrera, Sebald Wert, Oliver Van Noort, and others, corroborated his statement, and it became established as a positive fact, that a race of men of that size, did actually exist in that country.

The best authorities of a recent date, agree in giving to these giants, an average height of about six feet and eight inches. Out of charity, we will say that we believe that the ancient navigators gave the height of the Patagonians as nearly as they could guess. It may seem strange to some, that a man should not be able to guess within less than three feet of another's height, yet such we believe to have been the case in the present instance.

If the experiment be tried, it will be found that not more than one person in ten who is unaccustomed to the business, can guess within less than three inches of the height of a man of ordinary size; and that the taller the man, the wider of the mark are the answers. The following case will illustrate this. Years ago, when I was a mere school boy, a stout broad-shouldered Hercules, who stood six feet two, attended the same school. Out of curiosity, I once measured his height. I was surprised at the result, for I had supposed him to be at least four inches taller. I asked my schoolmates to guess upon his height, and of a class of forty-three pupils, only two of them guessed within three inches of his real stature, and several of them thought him to be as much as seven feet.

Another anecdote will more forcibly illustrate the fact. Several years since, I went to see a celebrated giant, who was said to be eight and a half feet in height. Few who saw him doubted the assertion. Many, even thought him to be much taller than that. By standing by his side, I found that I was able to reach some four or five inches above his head. When I returned home, I tried the experiment, and found that it was with the utmost difficulty that I was able to reach to a height of seven feet and three inches. I am fully satisfied that he was not over six feet ten inches tall.

One thing which makes deception all the more easy is the fact, that few persons know the average height of the American people. Most persons suppose it to be nearly six feet, while in reality it is about four inches less. The average height of the English is, stated by a recent authority, at about five feet seven, and of the Irish, at five feet nine. The Swiss are the tallest of any civilized nation, being about five feet eleven inches. The Germans come next on the list, as their average height is half an inch less.

Rutherford B. Hayes.

Rutherford B. Hayes was born in Delaware, Ohio, October 4, 1822. He received a good academic training, and was graduated at Kenyon College in Gambier, choosing the profession of the law.

And, right here, we beg leave to digress long enough to call the reader's attention to the fact, that the greater part of the great men, whose biographies have been briefly outlined in the *GROWING WORLD*, have chosen the law as their profession, when they started out in life to win a name and fame. Why their minds should have been so in unison in regard to their calling is mysterious.

"And," whispers some young friend's voice in the distance, "are we never to have outlined something beside political characters?"

You shall ere long have other pictures. Circumstances force us into taking whoever comes first to hand; but most deeply do we realize, most feelingly appreciate the fact that there never would have been a successful battle fought, nor a great victory won in life's onward march, if there had been no one but leaders in the field. The privates, the non-commissioned souls, standing shoulder to shoulder, guiding the batteries against wrong, making forced foot-sore marches through dangerous ways, bearing the soldier's pack and ammunition, facing hunger, thirst and galling privations, meeting death half-way at the command of duty—shall we pass these by unenrolled with the great? Heroes, martyrs, Christ-like souls, forbid.

And while we feast our ambitious aspirations with the successes of master-minds like Clay, Calhoun, and Webster, let us bear in remembrance that sometimes the last wine brought before the guests is better than the first.

To return: Mr. Hayes began practicing in Cincinnati when thirty-four years old. He was soon appointed City Solicitor of Cincinnati; and he is said to have discharged his duties acceptably to all parties concerned.

At the outbreak of the war, Mr. Hayes shut up his law books, and like many another young man, entered the volunteer army. His regiment was the Twenty-third Ohio, as gallant a body of men as ever responded with heart-beat to drum-beat in the cause of the Union. He developed a remarkable aptitude in the school of the soldier. First appointed as Major; in less than a year he was promoted to be Lieutenant-Colonel.

He commanded the Twenty-third in the fierce battle at South Mountain in the autumn of 1862. The regiment at that time formed a part of Reno's division; and to Lieut.-Col. Hayes is due the glory of giving the Union army a foothold on South Mountain. He was severely wounded in the arm during the contest, but gallantly held to the regiment until the issue of the battle was decided.

In 1864, Colonel Hayes was promoted to take charge of the division, and was then made Brigadier-General. His splendid record in the field made him the most popular candidate for Congress in his district. He came home from the war with unsullied glory, and was sent to the Thirty-ninth Congress in October, 1865, with the majority of 3,998 over his competitor.

Of General Hayes, very little was heard in the turbulent times after Johnson came into the Presidential seat.

He seemed without those qualities that creates such a jostling too often among political aspirants for the front position and leadership in Congress; and he sat with the perhaps wiser party, who, while being led, have better opportunities to test the calibre of the leaders. He was on the Committees on the Library and Private Land Claims. In 1866 he was renominated, but not by so large a majority as when the State read his war-record with excited pulses, but still sufficiently large to show the favor in which the candidate was held. During his Congressional term, Mr. Hayes evinced an honest interest in genuine reform.

Next his party nominated him for Governor of Ohio. His term as Governor was moderately successful. Then he had a period of rest during which he seemed to make politics or the art of governing a study. His friends returned to him again and renominated him; but as he seemed to have no vitally criminal notoriety or fame, he was not brought conspicuously before the public until the Convention of the Centennial year placed him before the people of the United States as the Republican candidate for the Presidency.

Fortune has conspired to place this unassuming soldier hero in the highest official position in our glorious land. His highest record up to this time depicts him neither of a boldly aggressive nature, nor of a weakly yielding character; and we only trust that his administration may be marked with such patience and Divine wisdom to each and every section of our heaven-blessed land, that his friends will love him better as the years roll on, and his enemies may say, "Behold we find no evil in him."

Ireland in the Olden Time.

BY CAPTAIN CARNES.

There was but little difference between the Magi of Ireland and the Druids of Britain. These fierce priests claimed also the titles of sage, seer and statesmen; and we Americans and people of this enlightened time can hardly realize the terrors of those dark ages, when in the depths of the almost impenetrable forests the unholy orgies of priestcraft were performed. Let us speak of the ghostly gatherings of fierce visaged priests, retreating cautiously through the dark pathways in the wood, pushing aside the tangled underbrush, down the rocky defiles, up the slimy ravines they come with mysterious, stealthy tread and treacherous eyes glancing about them, and cruel ears listening to the wind roaring through the night, or, too often, to the stifled gasps and moans of the human sacrifices which they were secretly bearing among them to offer up as gifts on their bloody altars. Fierce eyes seemed to watch them from under furze and brake; awful whisperings sounded in the dense tree-shadows above their temples; faint and fearful wailings rose and died, and rose again with every passing breeze.

The Romans swept down upon the Druids of Britain and routed the blood-thirsty and demonic horde, but the terrible rule of the Magi went on in Ireland; and just how and when it was ended, historians disagree.

Back among Scandinavian and Scythian hordes who wandered down from the steppes of Tartary, from the forests of Germany, from the bleak and ice-bound north, from the luxurious coasts of Spain and Portugal and the voluptuous plains of Italy, we must go to look for the ancestry of the people of Ireland. The Greeks called the country Ierne, the Romans Hibernia, and it also had the appellation of the Sacred Isle. Of Ireland's five provinces, Meath, Leinster, Munster, Connaught and Ulster, the former is famed alike in song and story, for within its precincts were the hill and hall of Tara. Some of the ancient Irish kings were piratically inclined; so it came to pass that one MacNial, a petty sovereign, coasting along the shores of Brittany, took along with other spoil, human captives. Among these was a boy sixteen years of age. Possessed of a wonderfully thoughtful mind, his vocation was such that he found himself much alone—scaling the mountain paths and treading the forest glades, where his meditations were deep and undisturbed, and a firm religious element was strengthened in his soul. He saw that the land was good, only ignorant idolatry had cruelly polluted the people. Amid the bitter experience of his slave life he conceived the idea that the people's minds might be enlightened to that blessed extent that the first-born might not be made a victim of horrible sacrifice. When this young man was about twenty-one years of age, Providence provided means for his escape, and arriving safely in France, for twenty long years he applied himself to the work of obtaining knowledge.

Never abandoning the idea of working a reformation in the character of the unhappy people of Ireland, this noble man obtained permission to preach the Gospel there. The Pope gave permission, and several monks proposed to accompany him. Their strange and striking appearance at first filled the peasantry with suspicious fear as regarded their business, but their mild and pleasing manners soon won for them a better reception, and at the halls of Tara they were received with enthusiasm. So earnest, so fervent was their preaching, so pure and ennobling the doctrine that they presented, that ere long, from simply attentive listeners the masses became believers in the better religion that denounced as demonic their fire-worshipping and murderous creed. The man who worked this great and wonderful good for Ireland was Patrick, afterwards honored with the appellation of Saint.

Francis Drake, the Ferry-Boy.

Francis Drake, one of the founders of English naval power, the eldest of twelve brothers, was the son of a most worthy sailor named Edmund Drake.

Francis was born in Tavistock, in Devonshire, in the year 1545. Francis Russell, afterward Earl of Bedford, stood as his godfather, and Sir John Hawkins, the celebrated navigator, defrayed the expenses of his education during the short period he remained at school. It was in this manner that the attention of Sir John Hawkins was drawn to the boy: While walking one day by the banks of the river Tamar, a few miles below the town of Tavistock, Sir John, being overtaken by a shower of rain, took refuge under the roof of an humble ferry-house, of which the only occupant at the time was a little boy.

As they sat together over the fire of turf and drift-wood, Sir John drew the boy, shy and retiring at first, into conversation. They spoke much about the great navigators who had sailed away, and discovered lands where strange people dwelt, where strange animals roved, where birds of brilliant plumage flitted through forests whose leaves faded not nor withered away, and where gold and jewels were to be gathered in abundance.

The boy, young Francis Drake, listened eagerly to the stories told by the great sailor, and resolved, as soon as possible, to resign his post as ferry-boy, get his father's permission to attend school for a time, and then begin active life as a sailor. Sir John read the boy's thoughts.

"My lad," he said, "I return to Tavistock in the evening. I will see your father, who liveth there. At my expense you shall go to school; and if you are attentive to your lessons and obedient to your parents, I know not but that you shall go with me to those far-off lands, where rivers deeper and broader than our Tavy and Tamar run through channels of golden sands."

Sir John sent the boy to school.

When Elizabeth came to the throne, Edmund Drake obtained an appointment among the seamen in the navy to read prayers to them, and soon afterward was ordained deacon, and made vicar of Upnor Church, on the river Medway, within a short distance of Chatham, where the royal fleet was wont to be anchored.

Thus passed the boyhood of Francis, among men who had done business in the great waters. While yet in his boyhood, his father, "by reason of his great poverty," apprenticed him to a neighbor, the master and owner of a small vessel, who carried on a coasting-trade, and made occasional voyages to France and Holland.

This master kept young Drake close to his work, and when he died, he bequeathed to the youth the bark and its equipments.

As a master mariner, Drake might have gathered together much money; but he had never forgotten the tales which Sir John Hawkins had told him as they sat over the fire in the old ferry-house; so he sold his ship, went down to Plymouth, and joined Sir John Hawkins, who was setting out on his last and unfortunate voyage.

But, as the years went on, Drake became famous. He ravaged the Spanish territories in America, and on his return from one of his cruises, relieved the starving French colony in Florida. In 1577, he sailed to the Pacific, plundered the coasts of Chili and Peru, and proceeding northward took possession of California in the name of Queen Elizabeth. At a later period, he took St. Augustine from the Spaniards; so that his name is connected with several points on our territory.

In the words of an old author, "books, pictures and ballads were published in his praise; his opinion and judgment concerning marine affairs were held in the highest respect." There was no port nor harbor in the world where his name was not known and feared. When after a perilous voyage round the Cape of Good Hope he returned to the Thames, Queen Elizabeth dined with the celebrated mariner, on board his ship, off Deptford, in the Thames, and after dinner she made him a knight of the realm.

Even to this day the name of Drake is honored in Plymouth, and spoken of with affection, and his memory is drank daily in draughts of crystalline water; for he devoted the savings of his life to the construction of an aqueduct which brings a supply of water from the Tors of Dartmoor to the town.

"He brought a river to Plymouth, three feet deep and six feet wide, which river in a right line from the town to the head thereof is eight miles, but in turning and

winding to come from the head to the town, is two-and-twenty miles."

Sir Francis Drake acquired his greatest fame by driving back and dispersing the ships of the invincible Armada, which had been fitted out by Philip of Spain to conquer England.

Drake died at sea, near Portobello, December 27th, 1595, and his body was committed to the waters of the great deep, on which so much of his life was spent.

The Pecos Indians.

About twenty-five miles east of Santa Fe, in New Mexico, formerly lived a tribe of Indians which was far in advance of the neighboring tribes in civilization and the arts, though inferior to them in every other respect. This tribe was known as the Pecos Indians. They claimed to be descendants of, and were, undoubtedly, in some degree, allied to the ancient Aztecs. The earliest historians give to this tribe a population of about twelve hundred inhabitants, although there is abundant proof, in the ruins of cities built of adobe that are found in different parts of New Mexico and Arizona, that the former number was many times greater.

Physically they were much inferior to the other Indians of the vicinity, and suffered so much from their warfare that, in 1830, the tribe consisted of but sixty-five persons of all ages; and eight years later, but eleven of them were alive. They then abandoned the village and it was supposed that the last descendant of this ill-fated tribe perished, during a violent storm, six or seven years later.

The Indians in this vicinity are generally called Pueblos, but this name cannot be applied to the Pecos, for the word is of Spanish origin and is used to denote *Christianized Indians*, or those tribes which have united with the Catholic church, and this tribe has always rigidly adhered to its own peculiar religious customs. A tradition prevailed among them that Montezuma had kindled a holy fire and enjoined them not to allow it to be extinguished until his return, when he would deliver them from the Spaniards. Consequently a careful watch was kept over the fire, which was built in a deep, subterranean vault, or cavern, and consisted of nothing but a few dying embers covered with ashes, to prevent its going out.

The task of guarding this fire was given to the warriors, and they were compelled to watch it for two days and two nights without partaking of food, drink or sleep. The tradition also states that Montezuma would come with the rising sun, and every morning the superstitious Indians were to be seen eagerly watching the "king of light," in hopes of seeing him accompanied by their immortal sovereign. They never lost hope of the final coming of Montezuma until as late as 1838, when by some accident, or from a lack of a sufficient number of warriors to guard it, the holy fire became extinguished. It was this catastrophe that induced them then to abandon their village. They never afterwards appeared to have any ambition or hope, and seemed only desirous of ending their lives in the most quiet manner possible.

The Pecos Indians are described as being below the medium size, rather fine-boned, and possessed a very delicate organization. They were of a lighter color than the Pueblos, though this may have been the result of their spending so much of their time in the shelter of their houses. Their language differed from that of any of the neighboring tribes, though many words of other languages had, essentially, become incorporated into it. They possessed the art of writing in hieroglyphics, and nearly all their pottery contains at least one inscription, while their houses are often completely covered with hieroglyphical designs; it is not supposed that any one living is able to read these characters, as the Pecos were very suspicious of every one who attempted to learn them, and took every possible means to keep the knowledge wholly among themselves.

Of their styles of architecture, comparatively little can be said. Their houses were generally square and flat-roofed. Adobe was the principal building material. For greater security, there were no doors upon the sides of the mansions, but instead, was a trap-door on the top, which was reached by a ladder. The ladder could afterwards be drawn up, and their enemies would have no visible means of reaching them, for the windows were much too small to allow the passage of any human body.



ROSY HOURS.

In the sunlight, in the glinting
Of the dewy Summer morn,
When the rose's opening petals
Flushed to crimson in the dawn;

When the gray in eastern heaven
Showed but one pale golden thread,
As the lark, sweet tuneful minstrel,
Left its fragrant clover-bed;

Three sweet maidens, straying, caroled
Gayly on the terraced walk,
Trilled out love-songs, idly prattled
Simple, girlish, tender talk.

Nell, a crimson flower places,
Smiling, in her arbutun hair,
Jealous zephyrs seize and bear it
Far away through perfumed air.

Ah! may heaven grant the omen
Point not to thy hope's decay,
That the blossoms of thy love-time
Be not borne by death away!

Laura, half defiant, scatters
Roses o'er the terrace wall;
Belle, reproving, turns to chide her—
Lets her fragile basket fall.

Oh, sweet, happy, hopeful bloomtime!
Now each reckless, loving maid
Sees not in her heaven a cloudlet,
Sees not in her sunshine—shade.

Mythical Beings.

The Giants were a distinct class, although their name designates them as sons of Earth, or Gaea, who gave them birth after the defeat of the Titans by Jupiter, and out of vengeance against him.

According to the common description, they had bodies of extraordinary size and strength, some of them with a hundred hands, and with dragon's feet, or serpents instead of legs. Their most celebrated undertaking was the storming of Olympus, the residence of Jupiter and the other gods. In order to scale this summit, they heaped mountain upon mountain, as Oeta, Pelion, Ossa, and others. But Jupiter smote them with his thunderbolts, precipitated some of them to Tartarus, and buried others beneath the mountains. Tryphon, or Typhæus, for instance, he pressed down with the weight of Ætna, under which, according to the fable, the giant constantly

strives to lift himself up, and pours from his mouth torrents of flame.

Ægon or Briareus was another giant, eminent in the contest, with fifty heads and a hundred hands. He hurled against Jupiter a hundred huge rocks at a single throw. But Jupiter bound him also under Ætna with a hundred chains. This war between the giants and Jupiter is also explained by some as an allegorical representation of some great struggle in nature which took place in early times. The Sirens were a sort of sea-goddesses, said by some to be two in number, by others, three, and even four. Homer mentions but two, and describes them as virgins, dwelling upon an island, and detaining with them every voyager who was allured thither by their captivating music. They would have decoyed even Ulysses on his return to Ithaca, but were not permitted. By others they were described as daughters of the river god, Aæhelous, and companions of Proserpina, after whose seizure they were changed into birds, that they might fly in search of her. In an unhappy contest with the Muses in singing, they lost their wings for a punishment for their emulation. Others make them sea-nymphs, with a form similar to that of the Tritons, with the faces of women and the bodies of flying fish. The artists generally represent them as virgins, either not at all disfigured, or appearing partly as birds.

The nymphs of ancient fiction were viewed as holding a sort of intermediate place between gods and men, as to the duration of life, not being absolutely immortal, yet living a vast length of time. Oceanus was considered their general father, although the descent of different nymphs is given differently. Their usual residence was in grottos or water-caves, from which circumstance they received their name. They were generally represented as young and beautiful virgins, partially covered with a veil or thin cloth, bearing in their hands vases of water, or shells, or grass, or having something as a symbol of their appropriate offices. The several gods are represented more or less frequently as attended by nymphs of some class or other, especially Neptune, Diana, and Bacchus. Under the term of nymphs, were sometimes included the imaginary spirits that guided the heavenly spheres and constellations, and dispensed the influences of the stars; the nymphs being distributed by some mythologists into three classes, those of the sky, the land, and the sea.

The Pampas of South America.

Fortunate in its climate, and rich in pasture and all the varied productions of horticulture, the whole of the middle and southern Pampa country is singularly destitute of woods and minerals. Historians inform us, that the discoverers gave the name of "El Rio de la Plata" to the mighty stream which flows along the eastern margin of the plains, because they found silver near its mouth. If they did, it must have been in very small quantities, and their own was the solitary case of such good fortune. Later explorers have found neither silver nor any of the precious metals on its banks. For hundreds of miles in the Pampa territory, no stones large enough to kill a sparrow were found, nor a cart-load of gravel.

On account of the total absence of wood and stone, large bricks are used for building purposes.

Excepting the western border, lying towards the Andes, the whole Pampa country is admirably adapted to the products of horticulture. Two crops of potatoes are obtained yearly. The whole cabbage family flourishes exceedingly well, especially that known as the cauliflower. All varieties of the pea follow in successive crops. The onion, however, bears off the palm in this region. It grows very large; is purely white, and is delicious either raw or cooked. Some travelers imagine this root to be the identical descendant of the "Egyptian leek." The natives love best the "sapallo," a specie of pumpkin.

Perhaps there is no better climate for men on the face of the earth than the Pampas of South America. The heat is seldom oppressive, and the winter season only sends a slight chill along the veins. The vast extent of the Pampa range allows the successful cultivation of cereals, fruits, and flowers in endless variety. It only lacks the vigor, ambition, and intellect which our northern latitude produces to make this country flourish in Eden-like luxuriance.

Henry Clay.

Henry Clay was born in that part of Hanover County, Virginia, known as "the Slashes," on the 12th of April, 1777. His father, the Reverend Charles Clay, was a Baptist preacher. Preachers of his class, at that time, in that section, were scarcely able to secure a meagre subsistence, so that when he died there was but a small and encumbered property left to his widow and seven children.

Of these children Henry was the fifth, a bright, cheerful, intelligent lad, who gave no special indication of superiority to other children by whom he was surrounded. When he was quite young he was sent to school, where he learned to read and write and cipher.

This was all the school that he ever attended, for his widowed mother was not able to do more for him, and soon he had to take his place on the farm to assist in cultivating it. But he did not like the drudgery of this life, and in 1791, when he was fourteen years old, his mother obtained for him a situation in a drug store in Richmond, where he served as clerk and errand boy for a year.

In 1792 Mrs. Clay married again. Her husband, Henry Watkins, obtained for Henry a place as copying clerk in the office of Peter Tinsley, Clerk of the High Court of Chancery. It was decided that Henry should remain in this situation. His mother went to Kentucky with her new husband, and Henry never saw her again. He applied himself with diligence to the duties of his position. He was not very prepossessing in appearance at this time, being tall for his age, slender and awkward. He was dressed in a suit of clothes that did not add to his personal attractions, as his collar was most unpromisingly starched, and his coat skirt braced off boldly behind him. He was greeted with illy-concealed ridicule by the city clerks to whose companionship his labors brought him, but something in his manner forbade open jeers. Ere long these city blades congratulated themselves that they had forborne their scoffs, for Henry Clay proved to be possessed of a cutting sarcasm and a ready tongue.

Soon his awkward manners disappeared, while he caught glimpses of the great men of Virginia that visited the Court and the Clerk's office. He keenly felt the deficiencies of his education, and he zealously set about remedying the evil. While his companions were reveling in wild and festive scenes, he studied manfully to fit himself for some laudable purpose in life beside fickle and ravishing pleasures. He was sound in body and soul.

So faithful and earnest were his attentions to duty, that he came under the favorable notice of Chancellor Wythe, one of America's wisest men. The Chancellor's nerves were beginning to fail him, his hand had begun to tremble, and he was compelled to seek a copyist. He chose Henry Clay, because of his neat, clear handwriting, and by reason of discerning many admirable traits of character in him.

For four years Henry Clay held the position of copying clerk, having to deal with and transcribe some of the most deeply learned papers ever penned by a jurist.

There was a debating school in Richmond, where young Clay began developing his talents as an orator. He soon became famous as the best speaker in the school. He was the fortunate possessor of a full, pleasing, melodious voice, which proved so great a charm as it strengthened and deepened, that thousands, in later years, sat spell-bound by its musical cadences.

He was aware of his gift, and cultivated it with care. After these four years Mr. Wythe advised him to study law, and obtained a situation for him in the office of the Attorney General. His formal studies did not last over a year, for his whole connection with George Wythe had been a law study. Before he had completed his twenty-first year he was licensed by the Court of Appeals to practice law.

Clay felt satisfied that the West offered him a better opening than Old Virginia, so he removed to Kentucky, then a young and growing State, with a population of two hundred thousand souls. In 1797, he crossed the mountains and went into Kentucky. Lexington pleased him, and, although there were several lawyers already located there, he immediately opened a successful and lucrative practice. His thrilling oratory made him a

marked man immediately, and his popularity was astonishing.

In 1799, he married Lucretia, the daughter of Colonel Thomas Hart, a leading citizen of Kentucky. He lived happily with her for fifty-three years. She was a prudent and able manager, so that ten years after his marriage he was independent of his profession. While zealously attending to his practice, he gave his attention to politics, and ere long became wholly anti-slavery in principle.

At the age of thirty he was Kentucky's foremost son. He was easy, careless and graceful in his manners, and had an immense fund of popular wit. He was above hypocrisy and meanness, and, although he had his failings, his rare talents overshadowed and concealed them. His adopted State loved and trusted him. In 1803 Mr. Clay was elected to the Legislature of Kentucky. In 1806 he was elected to the United States Senate. After his term had expired, he became Speaker of the Lower House of Kentucky. In 1809 Mr. Clay was again elected to the Senate of the United States. In 1811 he was elected to the House of Representatives from the Lexington District.

When the cloud of war was descending upon the young American Colonies, his stirring tones, his thrilling eloquence, was used to sustain the cause of liberty. His active public life went on, he being again and again nominated to fill high offices, and seldom failing of election, making himself interested in all questions at issue bearing upon the public welfare.

In the war with Mexico he lost a son of rare promise, which added to his already severe afflictions. His daughters were all dead, and young Henry, who fell at Buena Vista, had been the flower of his family.

We find him at last on the flight of steps leading to the Capitol, asking a friend to lend him an arm to assist him within. The great mental and physical strain to which he had been subjected for years, was bringing his brilliant career to a close.

Then followed his last speech, upon the subject of Compromise. As he warmed with his subject, his weakness seemed to vanish; there was a brilliant sparkle of his old fiery genius, and the awe-struck assembly felt that it was the last glorious up-flashing of his mighty intellect.

Winning the confidence and respect of the whole country by his later efforts for that country's future good, his earthly life soon after ceased, amid ripening honors. He died at Washington, on the 29th of June, 1852, at the age of seventy-five.

In briefly glancing over the wonderfully successful career of the statesman, Henry Clay, his onward and upward march from lowly life and obscurity to eminence and power, we are led to affirm that talent and energy are infinitely superior to riches and noble birth.

Perseus and Hercules.

Perseus was one of the most distinguished of the heroes of ancient mythology. He was the son of Jupiter and Danae, educated by Polydectes on the island of Seriphus. His chief exploit was the destruction of the gorgon, Medusa, whose head he struck off with a sword given to him by Vulcan. From the blood that fell, sprang the winged horse Pegasus, on which Perseus afterwards passed over many lands. Of his subsequent achievements, the most remarkable were his changing King Atlas into a high rock or mountain, by means of Medusa's head, and his deliverance of Andromeda, when bound and exposed to be devoured by sea-monsters. In connection with the latter adventure, he also changed into stone, Phineus, who contended with him for the possession of Andromeda. He inflicted the same afterwards upon Polydectes for ill-treatment towards Danae. To Perseus is ascribed the invention of the discus or quoit, with which he inadvertently occasioned the death of his grandfather, Acrisius. Finally, he founded the kingdom of Mycenæ.

After his assassination by Megapenthes, he was placed among the constellations, and several temples were erected to him, besides a monument between Argos and Mycenæ. Atlas, who on account of his refusing hospitality to Perseus, the latter is said to have changed into a mountain, is described as the son of Japetus, and the king of Mauritania.

He owned numerous flocks of sheep and beautiful gardens abounding with citrons and oranges. His seven daughters, renowned for beauty and wisdom, were called Atlantides from their father, and Hesperides from their mother, Hesperis. The gardens called the gardens of the Hesperides, were said to be guarded by a dreadful dragon that never slept. The name of Atlas was given to the chain of mountains in that part of Africa, and to the ocean on the west. Whether from reference to the height of those mountains or to the astronomical researches of the king, Atlas is said to have supported the heavens; and accordingly, artists have represented him as bearing an immense sphere on his shoulders.

Of all the Grecian heroes, no one obtained such celebrity as Hercules, son of Jupiter and Alcmæna. Wonderful strength was ascribed to him even in his infantile years. Eurystheus, king of Mycenæ, imposed upon him many difficult enterprises, which he carried through with success, particularly those which are called the *twelve labors* of Hercules.

These were: To kill the Nemean lions; to destroy the Lernean hydra; to catch alive the stag with golden horns; to catch the Erymanthean boar; to cleanse the stables of Angias; to exterminate the birds of Lake Stymphlis; to bring alive the wild bull of Crete; to seize the horses of Diomedas; to obtain the girdle of Hippolyta, queen of the Amazons; to destroy the monster Geryon; to plunder the garden of Hesperides, guarded by a sleepless dragon, and to bring from the infernal world the three-headed dog Cæberus.

Many other exploits were ascribed to him by which he gave proof of his extraordinary strength, and exhibited himself as an avenger and deliverer of the oppressed. Such were his slaying the robber Cacus, so much dreaded in Italy; the deliverance of Prometheus bound to a rock; the killing of Busiris and Antræus; the contest with Achelous, and the rescue of Alceste from the infernal world. Less honorable was his love for Omphale, queen of Lydia, by which he sank into the most unworthy effeminacy. His last achievement was the destruction of the centaur Nessus.

Nessus dying, gave his poisoned tunic to Dejanira, Hercules afterwards receiving it from her, and putting it on, became so diseased, that he cast himself in despair upon a funeral pile at Mount Æta.

The worship of Hercules soon became universal, and temples were erected to his honor, numerous and magnificent.

Jonathan Whipple.

SELF-TAUGHT TEACHER OF DEAF MUTES.

Let us turn from the broad highways of life with the noisy crowd eager to run the race of wealth and ambition into obscure paths where greater peace abounds.

No doubt, many of our readers have witnessed great fires—conflagrations; if so, have they noted the two classes of workmen who aid in subduing the flames. There are those who seek conspicuous places, who leap from roof to roof, who are seen by the multitude below as they shout their orders, or cheer on the others; and down amid the heat and smoke and falling timbers are the still ones who direct the hose or work the brakes—and which are of the most use. Justice compels us to assert that one could do but very little without the other. The shouts and commands of those above, stimulates those buried in a canopy of smoke and cinders, while without these latter, nothing would avail the calls of the others. Divine economy is seen in all things. It is not given us all to occupy prominent leading places. Shall we become faint-hearted and despondent? No, no! A first fiddle would be indifferent music if there was no accompaniment. An actor would be of no account if there were no audiences. The train would be poorly run with only an engineer and no brakeman, and so on indefinitely. All we need is to find our position in the rank and file of humanity, then work and hope for promotion.

Jonathan Whipple was born in Preston, New London County, Conn., in the year 1794. He never attended schools, but it was not from want of inclination, as he most ardently desired learning. The little reader from which his mother taught him to read, he learned so thoroughly, that he could repeat it word for word. In arithmetic, he knew no farther than the fundamental rules. His father set him his first copies in writing. In

this direction he made rapid progress. He did not become discouraged by the adverse circumstances that surrounded his younger years, but was possessed of that progressive spirit that believes we may remain scholars all our lives.

He labored hard, and after his marriage, receiving sympathy, we may imagine, from an appreciative wife, he took up the aim of his life anew, studying and obtaining help from time to time, until he became qualified to teach school. His seventy pupils progressed to that extent that his school was classed first in the town.

He contributed articles for the press on the popular topics of the times. In the matter of temperance, when liberal drinking was the rule in the first society, and being a total abstinence man, he threw his influence heartily upon that side. The most radical anti-slavery principles were in his heart before the days of Garrison and Phillips. He was a philanthropist, and, therefore, a man of peace, rejoicing in the well-being of his fellow creatures.

He was kind and generous, and never engaged in a law-suit in his life; and whenever sickness visited his vicinity, he was untiring in his ministrations. In such cases, however malignant the fever might be, he labored without thought of reward. When the youngest of his five children was old enough to walk, Mr. Whipple noticed that, although it seemed active enough and intelligent, something was amiss with him. When he discovered that the little boy was deaf he was sorely grieved. What an affliction, to be forever shut out of the world of sweet sounds, and doomed to endless silence.

He had never heard of the schools in Europe where the deaf are taught articulation and lip-reading, but noticing that the boy sometimes attempted to repeat a word, if he was looking directly at the speaker's mouth, the thought occurred to Mr. Whipple that there was something arbitrary about the manner in which the mouth has to form the word, and so he began the arduous task of making his son understand the meaning of words and the way to utter them.

Not only his own family depended upon him for support, but this wonderful man had the care of some orphan children besides; but every moment that he could spare he devoted to teaching his boy. Other members of the family lent ready assistance, and as the years passed on he kept pace with other boys of his own age, and in many respects was their superior. He could read, he could write a pretty hand, and decipher poor penmanship with remarkable accuracy, and he could talk. To such perfection was his instruction carried by his faithful and energetic father, that after he arrived to the years of manhood, he transacted business with strangers, bought goods of merchants, etc., and went away again without leaving a suspicion of his infirmity.

But Mr. Whipple's unselfishness did not allow his efforts to stop with his own son. He knew that scattered over the land were many children deprived of the sense of hearing, who must grow up mutes unless taught in some especial manner to talk.

He made a trial on a boy of about his son's age, and taught him to articulate the alphabet and several words distinctly, but his mother being poor, she was necessitated to send him to Hartford, where he was taught the finger and sign language.

Mr. Whipple took in another young man, who had lost his hearing by scarlet fever, and taught him for one hundred days, during which time he made such marvelous progress, that his friends were both astonished and delighted.

He met with much opposition from the teachers of sign language; but he proved by repeated experiments, that his plan was feasible and best.

He took a little girl of eight years into his family, and under his supervision she learned to speak and count, and could tell the age of each member of the family; and under his system of teaching may become a useful member of society.

His heart has been in all these good works, and what a wonder he accomplished. If he did not cause the deaf to hear, he caused the dumb to talk, and let in encouragement and sunlight upon many otherwise desolate lives. And his reward is foreshadowed in the blessed words: "Inasmuch as ye have done it unto one of the least of these, ye have done it unto Me." It is enough.

Peter Cooper.

There is no greater pleasure for our hand and pen to perform than in recording the notable events in the lives of those truly great men who dispose of their wealth to educate the masses. Here, philanthropy, morality and religion unite in crowning them the benefactors of their race—the corner-stones of the whole fabric of peace and prosperity. Above the most famous chieftains, above the builders of empires and master-masons of lasting towers and minarets, place the name of men, who assisting the cause of educating the people, lift the common masses out of “the pits of miry clay” wherein wallows ignorance and debauchery, and places their feet in the paths of knowledge—of wisdom—power—development.

Peter Cooper was born in New York, February 12th, 1791. His father served as a lieutenant in the War of Independence. His mother was a daughter of John Campbell, once mayor of New York, who acted as deputy-quarter-master-general during the Revolutionary War, and who devoted his large fortune to securing the independence of his country.

After the war Peter's father established a hat factory in New York, where his son assisted him for a time, but the business was not eminently successful, and when our hero was seventeen years old he was apprenticed to Mr. John Woodward, a coachmaker; and industry and perseverance soon showed themselves as prominent features of his character. So willingly and energetically did he labor, that his master was delighted with him, and good-naturedly offered to set him up in business, which offer young Cooper declined.

After leaving Mr. Woodward, in 1812, he started a factory for making patent machines for shearing cloth, but this business soon ceased to be remunerative, and he went into cabinet-making. This enterprise, also, failed of success, and coming to New York, he went into the grocery trade. Failure again in this line, also; but rebuffs and reverses only developed, as it were, the spiritual muscle.

Next, he went to manufacturing glue and isinglass. Here success, to a certain extent, awaited him. He worked at this business, while in his brain he planned and raised and peopled a structure which he hoped some day to rear in tangible form. Success having crowned his efforts in the isinglass and glue business, he looked about him for a wider commercial undertaking. Deeply impressed with the powerful resources of the country for the production of iron, he erected, in 1830, extensive iron works near Baltimore. He was the first one to apply anthracite coal to the puddling of iron, and his business so rapidly increased that, ere long, he established works at Trenton, New Jersey, where he erected a rolling mill for the manufacture of rails. He was the first to roll out wrought iron beams for fire-proof buildings.

In his works at Baltimore, Mr. Cooper built the first locomotive engine which ran in the United States. It was for the Baltimore and Ohio Railroad. He has always felt the most lively interest both in the railway and telegraph systems. He has been officially connected as President or Director with the principal lines in the country; and has done much to develop these extraordinary adjuncts to the commerce of the country. He has always seemed earnestly interested in all plans to aid his fellow man. He has been, at different times, a member of both chambers of the Common Council of New York; and while serving on the Council, distinguished himself by the zeal and ability with which he helped promote the establishment of the Croton Water Works.

But, you know, I told you of a noble structure with which his brain was busy all these years. I am happy to say that it was no fleeting or vain fancy. I am happy to tell you that he revelled in the noblest plan of elevating the masses—it was to facilitate the course of education.

He was a Trustee of the Public School Society, then Vice-President of the Board of Education, and, subsequently, a School Commissioner.

As the years went on Mr. Cooper's fortune accumulated until he found himself in a position to carry out the design formed years before.

In 1859 he executed a trust deed, which conveyed to the Cooper Union for the advancement of science and art, a piece of land in the intersection of Third and Fourth avenues, and on it he erected the building known

as the Cooper Institute. The value of the real estate and the money expended in the construction of the building counted up to \$630,000.

The avowed object of the institution was to provide for a complete technical education suited to the working classes of New York, to be conducted at night, so that day laborers might have the advantages of the school.

During the time since the establishment of this school the revenue of the Union, amounting to several hundred thousand dollars, has been expended in providing free instruction for the working classes.

The only stipulation made by Mr. Cooper was that his oldest lineal descendant should always be Trustee.

The system of instruction embraces a mathematical course, from the elements of algebra and geometry to the application of differential and integral calculus; in theoretical and practical mechanics; in natural philosophy and chemistry and their application to the arts; and in drawing, free hand, mechanical and architectural, according to the occupation of the pupil. This course is systematic and thorough, and will be extended to embrace all branches connected with these subjects. Besides the regular instruction, free lectures are given at night upon the application of science to the useful occupations of life; on social and political science—economy and the equitable form of government, based upon the fundamental laws which should alike govern nations and individuals. Another valuable adjunct to this institution is its free musical instruction of the highest order. Many ladies avail themselves of this matchless opportunity to acquire a musical education.

There is an art school for females here, where they are taught in pastel, water-color and oil painting.

One of the most useful and popular methods of occupying spare time by the working class who do not desire to join any of the various schools of the institute, is found in the great reading-room and library, which affords rare opportunities of access to the scientific, artistic, mechanical and general literature of the day. Foreign magazines and journals, as well as those of our own current literature, are always obtainable here.

The visitors to the reading-room, yearly, number above one hundred thousand.

Mr. Cooper after having projected and accomplished so philanthropic a work, does not rest from his work and throw down the laboring oar. He is an active member of the Board of Trustees, takes upon himself a large share of the management and responsibility connected with this noble enterprise, and almost daily devotes some hours to the care of its prosperity.

He has been intimately connected with telegraph interests, at one time being President of the New York, Newfoundland and London Telegraph Company, also of the American Telegraph Company, and of the North American Telegraph Association.

He is now old, but he was wise in time. He did not plan a noble work and allow others to stint or spoil his benevolent purpose when he lay helpless in the grave. He has tasted in satisfaction the fruits of his labor. He has, without a particle of egotism or vain-glory, erected a noble monument to keep alive his name and fame through coming generations. To attempt to subdue, eradicate or govern full-grown, mature ignorance, passion and sin, may be likened to entering a hospital when it is reeking with malignant, inveterate, loathsome disease—the philanthropist physician finds a colossal work before him—full of danger and infection, and, too often, barren of good results; whilst educating and elevating and ennobling the ignorant youth, is like military and sanitary laws exercised over a city; it does not grapple and fight so much with disease and death—it prevents both, to a certain degree, by protecting the people from the causes that induce effects or results.

Blessed is the nation which claims as her sons men like George Peabody and Peter Cooper; and thrice blessed, hearts like theirs which have been instrumental in giving hearing to the deaf, so to speak, sight to the blind, speech to the dumb and strength to the weak, for all this, under God's blessing, education will accomplish.

TO PREVENT MORTAR CRACKING.—A German scientific journal says that the cracking of mortar through dryness or heat may be prevented by the addition of chloride of lime. Mortar so prepared will stick fast even to glass, met and similar substances. It is thought that the addition of glycerine might answer the same purpose.

The Duke of Portland.

Few even of his nearest neighbors have the slightest idea how he spends his time. He is never seen at court, and fashionable aristocratic circles know him not. So far as society is concerned he is dead to the world, and even the few visitors to Welbeck Abbey seldom set eyes on their host. He surrounds himself with an atmosphere of the closest mystery, and no one, peer or commoner, is permitted to penetrate into the secrets of his life. Even his own solicitors, the firm to whom is intrusted the legal management of his enormous estates, are never allowed an interview with him, and in aristocratic circles it is habitually—but, as will be seen hereafter, erroneously—asserted that the only person who is permitted to see him is his confidential valet. His hat is of an unusual height; a long old-fashioned wig reaches down to his neck; wet or fine, he never stirs out without an umbrella; hot or cold, a loose coat is always slung over his arm; and, whether the ground be dry or muddy, his trowsers are invariably tied up below the knee with a piece of common string, in exactly the same fashion as is adopted by a navvy at his work. His mind is as active and his intellect as acute as those of almost any of his brothers in the peerage. He is now just seventy-six years of age, having been born on the 17th of September, 1800. He is, of course, enormously wealthy. Four or five years ago his annual income was upward of £300,000 and since that time it has very considerably increased. He is a very large owner of land around about Welbeck Abbey, where he usually resides, and he has besides enormously valuable property in London, chiefly in the district of Marylebone, besides very large estates in Northumberland, in Derbyshire, in Caithness, and Ayrshire. His Grace has never been married, nor, to the best of living belief, has at any time been smitten by a woman's charms. His ruling passion is an inveterate love for building. At Welbeck Abbey alone, for many years, there have been employed upward of five hundred masons, and a like number of smiths and joiners, besides the staff necessary for the ordinary work of the estate. His Grace is his own architect, and all his plans are laid out in the most methodical manner. Before he will allow a new building to be commenced he makes the designs, and causes to be constructed, often at the cost of some hundreds of pounds, a large model of the work to be put in hand. If the model does not please him he destroys it, draws new plans, and has a fresh model made. During the progress of the work he superintends it in person. His Grace is, by experience, very clever in building matters. He can detect the most minute fault, even such trifling defects as would escape the eye of the practiced and experienced workman. If a fault cannot be remedied by alteration, he causes the building to be, without ceremony, razed to the ground, and the work commenced afresh, until it is done to his satisfaction.

He has a deeply-rooted dislike to the observation of the outside world. He has even sought, by various clever expedients, to hide the old Abbey of Welbeck, where he constantly resides, from casual passers by, while the approaches to the Abbey are entirely subterranean. There are upward of fifteen miles of tunneling round Welbeck Abbey, and no one can approach the house without traversing some of them. This most extraordinary arrangement has taken many years to accomplish, but it is now complete. Some of these subterranean passages are constructed upon the most admirable principles. They are all well ventilated from above, and are lighted by natural and artistic means by day and night. In order to take away the monotonous effect of these underground passages, his Grace has built, in some cases parallel with the passages, other open corridors covered with glass, while at distances of every few yards are to be found statues, and other works of art, placed in niches in the walls. He possesses an extensive stable. He has upward of fifty hunters bred from the best stock in the land, and this although he has not for very many years followed the hounds himself. A gallery made of iron and glass, and a quarter of a mile in length, has been constructed, in order that the horses may be exercised in damp weather; his riding-school is a magnificent affair, with a lofty glass dome, and he has, besides, carriage-houses, hunting stables, and carriages of every description. His kitchen and culinary offices are constructed on an extensive scale, although

there are only his Grace to cook for, as, when he (occasionally) gives dinner parties, the food is sent in from elsewhere. Yet the Duke is most simple in his diet. He takes regularly but two meals a day, and at each he has half a chicken, one chicken being killed and prepared for him each morning. He never eats animal meat, and yet he enjoys perfect health. He passes much of his time among the workmen, but will seldom go near a stranger. Many people write to him, but he seldom or never gives a reply. He is a member of four London clubs—Boodle's, Brooks', the Travelers', and White's—but he never goes near them. He gives large hunting and shooting parties to different members of the English aristocracy, but never sees nor converses with them.

Sir Walter Scott's Friendships.

We look round and recognize few such friendships as are the theme of moralists and historians. They are the great alleviations of great minds under unusual pressure of circumstances; but in the more social aspect of the virtue, our own age has many a pleasant example. And notably Sir Walter Scott, whose heart was large enough for troops of friends, each of whom might have thought himself pre-eminently favored. He was equally great in the pleasures and the duties of the relation. His mind quick to catch the occasion when he might serve a friend; his affections warm, and sympathy overflowing, where these alone found exercise. And what he bestowed, he also desired on his own account. He was gracious, but not condescending. The tenderness that soothed and comforted so many in their trouble he was grateful for when his own trial came. He had none of the reserve, fastidiousness, shyness diffidence, exclusiveness which make friendship difficult, but felt what is quoted in Cicero—"There is enough in every man that is willing to become a friend." "He talks to all of us," said his poor neighbors, "as if we were blood relations." Rank was no hindrance, poverty no bar. He needed not one friend, but many, and of all degrees, to fit into and satisfy the various phases of his large nature. And yet he was not indiscriminate; he chose his friends for what was good and worthy in them; and had some to whom his heart and thoughts were open, who were necessary to him in a more intimate and especial sense. To all he was faithful; nor do we detect any trace of the too common effect of time in slackening ties which demand a tenacious regard to keep up. People's friends slip from them for want of a vigilant holding the absent in remembrance. Sir Walter Scott's correspondence continues various and faithful to the old names to the end. In no point is he more an example than in this of friendship—not as a feature of one period of his life, but as a constant influence to the end. No one more uniformly and implicitly followed the rule laid down by the son of Sirach—The man who hath friends must behave himself friendly.

Michael Angelo as a Workman.

Through his impatience and enthusiasm, Michael Angelo ruined block after block of marble by working with too great vehemence near the surface. He had a wonderful faculty as a mere workman in marble, but his genius and impetuosity of temperament would not brook the opposition of so stubborn a material, and unfitted him for those first processes of roughing out into shape the block, which requires patience and precision. Too eager to arrive at a point where his true genius would find play, he assailed the marble with such violence that he often struck off pieces which trenced into the just limits of the surface; and as they could not be replaced, he was forced to finish as he could—not as he would. Had he confined himself more to elaborating his work in clay, and then intrusting the blocking out in marble to a mechanical workman, we should have had not only a much larger number of grand works by him, but they would have been freer of great defects. For instance, the back of the head of Moses has been chiseled away until it is an impossible head. Again, the David is sacrificed to the exigencies of the marble. And the head of his famous Day was probably left unfinished because he perceived that it was turned beyond the limit permitted to nature without breaking the neck.

NEED teacheth unlawful things.—SENECA.

Rogers, the Sculptor.

John Rogers was born in Salem, Mass., October 30th, 1829. His father was a merchant, and there were only slight artistic traits among members of his family. His education was received in the New England schools. At the age of sixteen he was placed in a dry goods store in Boston, where he remained until 1847. At an early age he evinced a talent for drawing, and an artist's life was his boyhood's dream of greatness. His parents, however, regarding the boy's fancy as an idle chimera, endeavored to discourage him in this respect. Eventually, this opposition led him to a more careful preparation for his chosen avocation, and so proved a benefit rather than a bar to success.

In 1847, Mr. Rogers left the store in Boston and joined a corps of engineers at work upon the Cochituate Water Works. Here his talent for drawing was exercised and cultivated, but the work overtaxed and injured his eyes and he was obliged to give it up.

For the benefit of his health he made a trip to Spain. On his return from his brief sojourn, in 1848, he entered a machine shop in Manchester, New Hampshire, to learn the trade of machinist. Here, during his seven years' labor, he passed up from the work-bench to the draughting desk. While in Boston, after his return from Spain, he accidentally saw a young man modelling figures in clay. He watched him closely, and in a few months had learned the mechanical part of the art, which in his hands has wrought out so much of thought and beauty, and been the delight of many households. This art of modelling opened up new and perfect means of artistic expression. It came as a revelation from on high. After leaving the young stranger who had been the unconscious instrument to develop the genius of a mighty mind, Rogers obtained some clay, and going home began a series of studies which have since shown such vast results.

Although compelled to work in the machine shop in Manchester from five o'clock in the morning until seven at night, he found time to vigorously pursue his studies in clay, frequently working out his design by the light of a tallow candle at night. Ofttimes sleep was driven from his pillow by groups or figures of beauty that had birth in his mind, and there was no rest for him until these sweet ideals stood embodied in the clay.

His fancy revelling amid these objects of surpassing beauty made his manual toil at his trade extremely distasteful, illustrating fully how hard it is to serve his masters.

In 1856 he accepted the offer to take charge of a railroad machine shop at Hannibal, Missouri; but in less than a year after his removal thither, came the business crisis that threw so many people out of employment. He came East with others at the stoppage of business, and although his means were limited, he determined to visit Europe and see the great works of the immortal masters, intending to study and arrange, if possible, to follow, uninterruptedly, his chosen pursuit. Accordingly he visited Paris and Rome. But after months of study, he found that he could not awake within himself enthusiasm for classic art. He came home, for the first time, dispirited and distrustful of his talent.

He looked about him and found employment in the office of the city surveyor of Chicago. He was now thirty years of age, possessed of a trained eye and hand, a cultivated mind, and stainless character; so it is not to be wondered at that he gave his employers entire satisfaction.

He had been in Chicago some months, when he modelled a group which he placed at the disposal of some ladies getting up a charitable fair. This work "The Checker Players" showed ease, freedom, and life-like outline. His talent for the first time was recognized by the public; but his reputation was not established fully until after the exhibition of his "Slave Auction" in New York in 1859.

The group entitled "The Slave Auction" was modelled at the right time, and took hold of popular feeling at once. He now established himself in a studio on Broadway; and, somehow, the public just then felt infinitely greater interest in living subjects than in classic beauties.

Soon after "The Slave Auction" Mr. Rogers added to his works "The Village Schoolmaster," "The Town Pump," "The Picket Guard," "Camp-Fire," "Sharp-

shooters," "Union Refugees," and "The Country Post Office, or News from the War."

In these models Mr. Rogers embodied the vital experience of the times, and the heart of the masses vibrated in response to the tell-tale figures.

At first, he practiced strict economy, for his works sold low; and he lived in his studio, and even practiced the culinary art. "But the lighthouse of hope beamed bright on him now." Among his works produced between 1860-'62, are "The Fairy's Whisper," and "Air Castles."

In the former, the light, graceful form of a fairy is seen rising from the fern leaves, with its tiny mouth at the ear of a boy, who bends forward in listening wonder and delight. In "Air Castles," the young girl at the fountain has forgotten her errand in her day dream, and the brook has filled and is overflowing the unheeded bucket by her side. In the face and figure are blended the rarest charm of pose and expression. During the next three years Mr. Rogers produced the "Returned Volunteer," "Mail Day," "One more Shot," "The Home Guard," "The Bushwhacker," and "Taking the Oath and Drawing Rations." There is a touching fidelity about the outlines of all these works, and it would be very interesting to minutely point out the beauties of each, but space forbids.

Mr. Rogers' later works comprise "Uncle Ned's School," "The Charity Patient," "The School Examination," "The Council of War," and "Courtship in Sleepy Hollow."

Rogers' groups and figures have a birth-place in the present century. They are animate almost with the life of the present hour. American ideas and customs are embodied in solid form. He gives us the citizen soldier of New England; the man of the South and the man of the West; the negro; the women of both sections; the inventive genius; the heroism, the pride and humor of the people, with their customs and costumes. Grecian mythology and Grecian heroism are interesting subjects to anybody, both in song and marble, but we are somewhat dead to their touch as they are to ours, for we cannot enter into the experience of ancient Greece, because the past ages are, as it were, a dead language to us; but reproduce for us incidents that commemorate individual suffering or national glory, and the nerves thrill and the public bound in sympathetic life.

All honor to the sculptor, painter, or poet, who believes and renders immortal the sublime truth that

"We are living—we are striving
In a grand and glorious time,
When the age on ages telling—
To be living is sublime."

And the record, deeply graven,
On the path where we have trod,
Show the heart of man is reaching,
Up from earth to Nature's God.

His Choice.

At eighty years of age, Voltaire retained his vigor of intellect to a remarkable degree. Some friends, complimenting him on the success of his works, remarked that the reputation he would leave behind him was worth a life-time of toil. "A century of immortality against one year's good digestion!" said the great philosopher; and in these days of dyspeptic trouble, many people will sympathize in his view of the great life problem. Yet, under certain circumstances, dyspepsia is as much of a crime as a misfortune. The beasts of the field would not violate the laws of health in their habits of eating to the extent that some human creatures habitually do. For instance, the glutton who recently took his place at a hotel table, opposite a well-known medical man. Somebody asked the glutton about his health. He replied: "I am not feeling very well; I am suffering from dyspepsia." Just then the waiter appeared, and placed before the dyspeptic gentleman his breakfast, which consisted of three boiled eggs, two baked potatoes, a plate of beefsteak, a cup of coffee, and four buckwheat cakes. The doctor was just then in the act of winding his watch, and concluded to time the victim of dyspepsia, who startled him by bolting all of the edibles set forth in the remarkably short space of *two minutes and ten seconds*. This was not eating, it was gobbling. The sufferer deserved all the dyspepsia his gluttony brought him.

Abraham Lincoln.

In Hardin County, Kentucky, February 12th, 1809, a son was born to a poor, uneducated but worthy couple, and no elfish old nurse bending over his cradle would have thought to prophesy of the wonderful events that were to crowd into his after life. He grew up a stout, healthy boy, and was early put to work on his father's farm. When he was seven years old he was sent to school, where he learned to read. But circumstances did not allow of his remaining long at school, for his father determined to remove farther west. He disposed of his little place in Kentucky for about two hundred dollars, and, constructing a flat boat, the boy's father embarked with his goods, without his family, upon the Rolling Fork River, from which he floated into the Ohio, *en route* for Indiana. Soon after entering the Ohio River the boat capsized and the most valuable part of the cargo was lost. Disposing of the remainder, the emigrant succeeded in reaching Spencer County, Indiana, where he located a new farm, and then he returned to Kentucky on foot to bring out his family. Seven days' journey on horseback, through an uninhabited country, brought them to the new home.

All hands went to work to build a house. The boy, with an ax, done good service in preparing logs for the cabin, and neighbors kindly assisted in the work, and in three days a comfortable log structure was erected. It had but one room and the loft overhead, reached by means of a ladder. This was the boy's bed chamber, and, with a blanket and a pile of straw, his sleep was as sweet as that which visits a downy couch.

The little fellow assisted his father in making the furniture used in their primitive home, besides being very busy in the pleasant weather in procuring fire wood and fencing material. He also learned to use the rifle; but, amid all this business, he found time to study both reading and spelling.

When he was a little more than eight years old his mother died, afflicting him with a loss which the world could never repair. All through his after life he remembered her with reverent affection. But the family found kindness in their neighbors, one of whom taught the boy to write.

Some two years after his mother's death his father married a kind and excellent woman, who proved a second mother to the boy and his sister.

About this time a school was opened in the neighborhood, and the boy was delighted to be enrolled as a pupil of the new "Academy." His quick perception and retentive memory were of immense advantage to the young scholar, and he made the best use of them.

His school clothes were made of dressed buck skin, with a cap made of raccoon skin. For six months he attended this school, and then he was obliged to start out in the world and earn his own living. For five years he worked steadily in the woods, giving his evenings to the study of such books as he could obtain in the vicinity. Figuratively, he ate and digested the better part of all the volumes which he obtained.

When he was nineteen years old he was hired for ten dollars a month by a man living near them, to assist in navigating a flat boat loaded with stores to New Orleans. There was but one other man on the boat with him, and they made the long voyage down the Mississippi, floating along in the day time and anchoring to the bank at night. One night ruffians attacked their boat, but were driven off, and at length they reached their destination and profitably disposed of their stores.

But the young man's father, imbued with the true pioneer spirit, soon found Indiana too thickly settled for his fancy, and again "pulling up stakes" they packed up their household commodities into large wagons which were to be drawn by oxen. The young man Abraham drove one of these, and through the bottom lands along their route the male members of the party were often obliged to wade in water to their waists. Pushing along the Sangamon River, they settled upon a ten-acre tract on the north side of Sangamon River. Here, again, the work of clearing a farm went on, and "Abe" began to plant, but the soil was so fence the farm. During the Fall and Winter his rifle furnished the principal supply of food for the family.

A school was now opened upon the man's estate, and he was sent to school, and continued his studies until 1830. In 1830 he removed to a farm near Petersburg, Va. Summer and Winter work was done, and Peterburg, Va.

evenings he devoted to faithful study, drilling away at reading, writing, grammar and arithmetic. In the Spring he was hired by a Mr. Offut to navigate a flat boat—they having first acted as ship builders of the craft—on a trading expedition to New Orleans. The ability and industry of young Abraham so won upon the esteem of his employer that later he gave him the chief position in his mill and store at New Salem village. Here the young man acquired his lifelong appellation of "Honest Abe."

We next find him a volunteer in the army during the Black Hawk War. After that he was nominated for the Legislature, but was defeated by a small majority. Then he tried storekeeping for himself; afterwards he studied surveying. Then again he was nominated for the Legislature and was elected, subsequently being three times re-elected.

Ambition now began to influence his thoughts, and, studying law with Hon. John T. Stuart, in 1836 he was admitted to the bar. Soon after this he removed to Springfield. As a lawyer he was successful, and his first fair fee for winning a case he devoted to providing a comfortable home for his kind and faithful step-mother.

Next we find him Member of Congress, even then exhibiting a lively interest in the abolishment of slavery. He declined re-election. For the next five years he devoted himself to his profession, meanwhile having married Mary, daughter of Hon. Robert S. Todd, of Lexington, Kentucky. He developed the most amiable traits of domestic affection.

When the Republicans of Illinois presented Abraham Lincoln as their candidate for the Presidency of the United States, there was a sensation among all parties.

At the meeting of the State Convention Mr. Oglesby—afterward Governor of Illinois—brought into the hall his old fence rails decorated with flags and ribbons, and bearing an inscription that strongly resembles a derisive title given One spoken of in the Gospels. This motto ran thus:

"Abraham Lincoln: the rail candidate for President in 1860"

Then Mr. Lincoln arose in the gallery and acknowledged that thirty years before he *had split rails* in Macon County, Illinois; and he had been informed that those two rails were from a lot of three thousand made by himself and one Thomas Hawks.

His party friends were anxious for his election, and advised him how to defeat the Greeley party by promising seats in the Cabinet to certain men named at the time.

What a ring of pure gold there was in the answer: "I authorize no bargains, and will be bound by none!"

Again, when the committee waited on him to inform him of his nomination, he made an appropriate reply, and then stood "treat" for his guests, pledging them in a glass of cold water, saying that it was God's best beverage and all that his (Lincoln's) family ever indulged in.

We all remember his election and the state of the country at that time, and without regard to our politics we know that he suffered a martyr's death—died for the (to him) right cause; and we also note with awe—let our politics be what they may—that the assassin's heels were tripped up by the very flag which he (figuratively) sought to rend and annihilate. And thus his own untimely end brought about. Lay aside all party prejudice and think what a country we have. Ah, we do not half appreciate it—the privilege of being a citizen of America, the land of the free! The ragged little boy picking up chips by the wayside, or drawing cubes and angles on a board, may sometime rise up to the President's, or statesman's chair, to bid some other struggling, ambitious soul God speed in its upward career.

Through his onward course during all his successes, and when he came to the chief position of the country, Abraham Lincoln's unaffected manner, his good hearted humility, makes us admire him and venerate his memory.

Those whom power or success makes vain are to be pitied, for the glory of earth is as unstable and perishable as a bubble on the ocean; and it is not the position to which we attain, but the good and wise uses to which we give our talents, that brings joy and peace to the heart and which will shed a glory such as a Summer sunset around our dying beds.

Dear reader, let us remember always that it is the fruitless branches of the trees and the waste, worthless ears of grain that toss high and empty above their fellows, while the mass from the chaff lies hid, the richer the grain heads, the lower they drop.

CURIOUS AND INTERESTING FACTS ABOUT TOADS.

The Common Toad (*B. Americanus*, Le Conte) is very well known. Glands appear on the skin of the back and sides, which pour out an acrid fluid, capable, perhaps, of producing irritation on a very sensitive skin, and certainly designed as a means of defence. A dog seizing a toad immediately drops it; its mouth becomes rapidly

under the door of a bee-hive every fine evening and dexterously pick up those bees who, overladen or tired, missed the doorstep and fell to the ground. He lost, by some accident, an eye, and it was observed by some members of the family, as well as myself, that he had with it lost the ability to pick up a bee at the first trial—his tongue struck the gravel one side of the bee; but after several weeks practice with one eye he regained his certainty of aim. I have never seen our toad raise his hands to crowd his food



THE FEMALE PIPA AND HER YOUNG.

filled with an abundance of frothy saliva, while its attempts to clear it away and its mode of shaking its head, prove its mouth to be unpleasantly or painfully affected.

Toads are easily rendered familiar, and in a little time they will come out of their holes and sit quietly to take small slugs presented to them. This they do like the frog, and with so rapid a motion of the tongue as almost to elude the eye.

In the summers of 1843-45, an old toad used to sit

into his mouth, as the European toads do, although he uses them freely to wipe out of his mouth any inedible or disagreeable substance. When our toad gets into his mouth part of an insect too large for his tongue to thrust down his throat (and I have known of their attempting a wounded humming bird), he resorts to the nearest stone and presses the protruding part of his mouthful against it, and thus crowds it down his throat. This can be observed at any time by tying a locust's hind legs together and throwing it be-

fore a small toad. On one occasion I gave a yellow striped locust to a little toad in its second summer, when he was in the middle of a very wide gravel walk. In a moment he had the locust's head down his throat, its hinder parts protruding, and started for a stone or clod; but finding none at hand in either direction, he lowered his head and crept along, pushing the locust against the ground. But the angle with the ground was too small, and my walk too well rolled. To increase the angle he straightened his hind legs up, but in vain. At length he threw up his hind-quarters, and actually stood on his head, or rather on the locust, sticking out of his mouth, and after repeating this once or twice, succeeded in getting himself outside of his dinner.

But these instances of ingenious adaptation to the circumstances were exceeded by a four-year old toad at Antioch College. I was tossing live earth-worms while digging, and presently threw him so large a specimen that he was obliged to attack one end only. That end was instantly transferred to his stomach, the other end writhing free in the air, and coiled about the toad's head. He waited until the worm's writhings gave him a chance, swallowed half an inch, then, taking a nip with his jaws, waited for a chance to draw in another half inch. But there were so many half inches to dispose of that at length his jaws grew tired, lost their firmness of grip, and the worm crawled out five-eighths of an inch between each half inch swallowing. The toad perceiving this, brought his right hand to aid his jaws, grasping his abdomen with his foot, and by a little effort getting hold of the worm in his stomach from the outside, he thus by his foot held fast to what he had gained by each swallow, and presently succeeded in getting the worm entirely down.

The amount which a toad can eat is surprising. One morning I threw a squash-bug to a young toad. He snapped it up, but immediately rejected it, wiped his mouth with great energy, and then hopped away with extraordinary rapidity. I was so amused that I gathered some more of the same bugs and carried them to a favorite old toad at the northeast corner of the house. He ate them all without making any faces. I gathered all that I could find on my vines, and he ate them all to the number of twenty-three. I then brought him some larva phygara ministra three-quarters grown, and succeeded in enticing him to put ninety-four on top of his squash bugs. Finding that his virtue was not proof against the caterpillars when I put them on the end of a straw, and tickled his nose with them, he at length turned and crept under the piazza, where he remained three days digesting his food.

Do not kill the toads. In Paris they are sold at fifty cents a dozen. A toad will swallow the biggest kind of a tomato worm, and one toad has been known to eat seven hundred and thirteen flies at a meal.

The dealers in this uninviting article keep it in large tubs, into which they plunge their bare hands and arms without any fear. Toads are also kept in vineyards, where they devour during the night millions of insects that escape the pursuit of nocturnal birds.

An English correspondent says:—We had an excellent collection of Dahlias, and they were put to "start" on a bed of leaves in one of the early vine-ries, where we were also very much troubled with earwigs and wood-lice eating them. I got a lot of toads and placed amongst them, and found they were quite at home in their new quarters, and soon rid us of our enemies. My toads and I got great friends, and they became so tame that they would eat from my hand, and I was also an eye-witness to one of them taking off his jacket and making it up in a pill and bolting it. One day, during the month of July in the same year, I was gathering strawberries in the open garden, and came upon a very large snake, which I killed. Seeing a large lump about its middle I placed my foot on its tail and took a garden rake and worked the lump upwards, and in much less time than it has taken me to write, I had worked it out at the snake's mouth—a fine live toad. He winked and blinked a bit and then hopped off, no doubt well pleased with his change.

A French gardener is said to have experimented with a view to ascertaining how far a toad could be used in the capacity of a carrier pigeon. Observing one that spent hours daily in the neighborhood of a hive on the chance of snapping up a few of its inmates, it was by him made the subject of an experiment. A pink ribbon was tied around his neck, and was carried to a distance of nine miles from the place and there left. Forty-eight hours later the toad again sat watching the bees darting to and fro from the hive.

The toad has been known to live thirty-five or forty years, and it is thought to attain a considerably greater age. It can, like many other reptiles, live a long time without food, and with a very small supply of air; but the alleged instances of their having been found imbedded in solid stone or the heart of a tree, with no possible communication with the external world, have, no doubt arisen from errors of observation, though much remains unexplained about the facts upon which this popular belief is based, and though toads have been taken from places where it seemed impossible that they could have obtained food, air, or moisture, it cannot be admitted that they have been hermetically sealed. With Mr. Thomas Bell, it may be said: "To believe that a toad, enclosed within a mass of clay or other similar substance, shall exist wholly without air or food for hundreds of years, and at length be liberated alive and capable of crawling, on the breaking up of the matrix now become a solid rock, is certainly a demand upon our credulity which few would be ready to answer."

That toads, frogs, snakes, and lizards, occasionally issue from stones that are broken in a quarry, or in sinking wells, and even from a strata of coal at the bottom of a coal mine, may be readily admitted, but Dr. Buckland remarked that "the evidence is not perfect to show that the reptiles were entirely inclosed in a solid rock." No examination is ever made until the reptile is first discovered by the breaking of the mass in which it was contained, and then it is too late to ascertain, without carefully replacing every fragment (and in no case that I have seen reported has this been done), whether or not there was any hole or crevice by which any animal may have entered the cavity from which it was extracted. Without previous examination, it is almost impossible to prove that there was no such communication. In the case of rocks near the surface of the earth, and in stone quarries, reptiles find ready admission to holes and fissures.

In digging up a garden near Orsay, some workmen unearthed recently some terra cotta vessels, which they at first supposed to contain treasure. On breaking them, however, two live toads were found, clad in green velvet. This strange attire showed that they must be at least two hundred years old, as an ancient treatise on magic and demonology mentions that at the beginning of the seventeenth century sorcerers dressed up toads in this manner for the achievement of certain charms.

While Dr. Schliemann was making excavations on the supposed site of ancient Troy, in 1872, he came upon two toads imprisoned among the blocks of stone unearthed at a depth of from 39½ to 52½ feet. The event furnishes some pleasant moralizing from the archaeologist, upon the fact that these toads had survived among the ruins of the Homeric city for at least three thousand years. At the same time and place, a small, but very poisonous snake was discovered. This creature, however, the doctor thinks may have wriggled his way down from the surface at a later period. Shortly after this first interesting discovery, a second pair of toads were found between the stones of old Troy, at a depth of 43½ feet from the surface. The venerable antiquities hopped off as soon as they were free. The naturalist will regret that Dr. Schliemann did not make such careful observations with regard to the position of these exhumed animals as to settle all doubt as to the time and manner of their getting into the apparently tight place from which they were liberated.

Similar instances of liberating toads are of frequent occurrence, but space will not allow of other examples.

Now the first effort of the young toad, as soon as it has left the tadpole state and emerged from the water, is, doubtless, to seek shelter in holes and crevices of rocks and trees. An individual which, when young, may then have entered a cavity by some very narrow aperture, would find abundance of food by catching insects, which, like itself, seek shelter within such cavities, and may have soon increased so much in bulk as to render it impossible to go out again through the narrow aperture at which it entered. A small hole of this kind is very likely to be overlooked by the workmen, who are the only people whose operations on wood and stone disclose cavities in the interior of such substances. Dr. Buckland made some experiments on this subject. He caused twelve cells to be prepared in a large block of coarse oolitic limestone. Each cell was about one foot deep and five inches in diameter, and had a groove or shoulder in its upper margin, fitted to receive a circular plate of glass and a circular slate to protect the glass. The margin of this double cover was closed round, and rendered impenetrable to air and water by a luting of soft clay.

Another block of compact siliceous sandstone was made to contain twelve smaller cells. A live toad was placed in each of these twenty-four cells, and the glass and slate cemented down by a coating of clay. The blocks were then buried in Dr. Buckland's garden, three feet deep.

The result of Dr. Buckland's experiment was, that all the toads, with the exception of several large ones, were dead at the end of thirteen months, a fate that befell all before the expiration of the second year. These last were examined several times during the second year, through the glass covers of their cells. They appeared always awake, with open eyes, and never in a state of torpor; but at each examination they became more and more meagre, till at last they were found dead. When Dr. Buckland inclosed these toads in stone, he at the same time placed four other toads, of moderate size, in three holes, cut for that purpose on the north side of the trunk of an apple tree. These were carefully closed with plugs of wood, so as to exclude access of insects, and were apparently airtight. Every one of these toads thus "pegged" in the knotty entrails of the tree, was found dead and decayed at the end of the first year. We may therefore conclude, as did Dr. Buckland, that toads cannot live a year excluded from atmospheric air.

The eggs of amphibia are enveloped in a sort of delicate mucous, permeable membrane. They are, when excluded, most frequently agglomerated, either in glutinous masses or chaplets, and increase considerably after they are plunged in the water. There are, however, some curious modifications of the disposition of eggs in certain species. In one species of toad (*Bufo obstetricans*), the male, after the exclusion of the eggs, takes up the chaplets and disposes them round his thighs, something in the form of a figure eight. He is then said to carry them until the eyes are visible, when he carries his progeny to some stagnant piece of water and deposits them, when the eggs break and the tadpoles come forth and swim about. The pipa toad (*P. Americana*, Laur.), found in Susinam, Guiana, and Brazil, manages its eggs in a different manner. As the female provides them, the male spreads them over her flat and broad back. When this is effected the skin of the back suffers a sort of inflammatory action; numerous pustules, or rather pit-margins, arise, which seem to absorb the eggs, one in each pit, so that the entire back resembles a portion of honeycomb. Here the eggs are duly hatched, and, what is more extraordinary, here the tadpoles undergo their transformation and become complete, emerging as their development takes place, which is not precisely at the same period of time. The average interval, however, from the spreading of the eggs on the back of the female, is eighty-two days. In a short time the skin of the back regains its usual appearance. The young, when they quit the cells of the parent, are very small, not exceeding a lentil in size, but their limbs are perfectly formed.

The toad, like all the reptiles and amphibia, yearly sheds its skin, a new one, of brighter tints, being prepared beneath. Mr. Bell has described the way in which this process takes place. "Having often found," he says, "among several toads which I was keeping for the purpose of examining their habits, some of brighter colors than usual, and with the surface moist and smooth, I had supposed that this appearance might have depended on the state of the animal's health, or the influence of some peculiarity in one or other of its functions.

"On watching carefully, however, I one day observed a large one, the skin of which was particularly dry and dull in its color, with a dark streak down the mesial line of the back, and, on examining farther, I observed a corresponding line along the belly. This proved to be a slit in the old skin or cuticle, which exposed to view the new cuticle beneath. Finding, therefore, what was about to happen, I watched the whole detail of this curious process. I soon observed that the two halves of the skin, thus completely divided, continued to recede farther and farther from the centre, and became folded and wrinkled, and after a short space, by means of the continued twitching of the animal's body, it was brought down in folds at the sides. The hinder leg, first on one side and then on the other, was brought forward under the arm, which was pressed down upon it, and the hinder limb being withdrawn, its cuticle was left inverted under the arm. That of the anterior extremity was then loosened, and at length drawn off by the assistance of the mouth. The whole cuticle was then detached, and was now pushed by the hands into the mouth, rolled in the form of a little ball, and swallowed at a single gulp."

In the "Natural History of Selborne," the Rev. Gilbert White says: "That toads are not noxious to some animals, is plain, for ducks, buzzards, owls, stone curlews, and snakes eat them, to my knowledge, with impunity. And I well remember the time, but was not an eye witness to the fact (though numbers of persons were), when a man at this village ate a toad to make the people stare. Afterwards he drank oil.

"I have been informed, also, that some ladies (ladies, you will say, of peculiar taste) took a fancy to a toad, which they nourished Summer after Summer for many years, till he grew to a monstrous age, with the maggots which turn to flesh-flies. The reptile used to come forth every evening from a hole under the garden steps, and was taken up, after supper, on the table, to be fed. But at last a tame raven, seeing him as he put forth his head, gave him such a severe stroke with his horny beak, as to put out one eye. After this accident the creature languished for some time, and died."

Mr. Derham, in "Ray's Wisdom of God in the Creation," concerning the migration of toads from their ponds, subverts the foolish opinion of these creatures dropping from the clouds in rain, showing that it is from the grateful coolness and moisture of these showers that they are tempted to set out on their travels, which they defer till these fall. How wonderful is the economy of Providence with regard to the limbs of these rep-

tiles! While it is an *aquatic*, it has a fish-like tail and no legs. As soon as the legs sprout, the tail drops off as useless, and the animal betakes itself to the land! We have seen myriads of these emigrants in the paths and fields, no larger than our little finger nail.

In conclusion, then, the toad is a harmless creature, capable of becoming attached to man, to whom it is exceedingly useful. Let us then never abuse it, but take to heart the "Lesson of Mercy" taught by Alice Cary in the following verses:

A boy named Peter, Found once in the road All harmless and helpless, A poor little toad;	Then he gave the poor toad, With his warm nose a dump, And he woke and got off With a hop and a jump.
And ran to his playmate, And all out of breath, Cried, "John, come and help, And we'll stone him to death!"	And then with an eye Turned on Peter and John, And hanging his homely head Down, he went on.
And picking up stones, The two went on a run, Saying, one to another, "Oh, won't we have fun?"	"We can't kill him now, John," Says Peter, "that's flat, In the face of an eye and An action like that!"
Thus, primed and all ready They'd got nearly back When a donkey came Dragging a cart on the track.	"For my part, I haven't The heart to," says John; "But the load is too heavy That donkey has on,
Now the cart was as much As the donkey could draw, And he came with his head Hanging down; so he saw,	Let's help him." So both lads Set off with a will, And came up with the cart At the foot of the hill.
All harmless and helpless, The poor little toad, A-taking his morning nap Right in the road.	And when each a shoulder Had put to the wheel, They helped the poor donkey A wonderful deal.
He shivered at first; Then he drew back his leg And set up his ears, Never moving a peg.	When they got to the top, Back again they both run, Agreeing they never Had had better fun.

Length of Life of Animals of the Higher Species.

It was suggested by Buffon that the duration of the lives of such animals is in proportion to the time expended in reaching maturity. Flowrens, taking advantage of the suggestion, observed that the larger animals live about five times as long as the time expended in reaching maturity. Thus:

The camel grows for 8 years, and lives	40
The horse " 5 " "	25
The ox " 4 " "	15 or 20
The lion " 5 " "	20
The dog " 2 " "	10 or 12
The man " 20 " "	100 or more.

The physical analogy would therefore show that the life of man should be not less than a hundred years. How much it may, and often is shortened by the violation of natural laws, the intelligent reader will not fail to consider.

Taken from the Street.

Many a boy is ruined by bad company, who might have been saved by attention and hearty sympathy. A kind and hearty sympathy. A kind look at the right moment may shape an entire life. Nearly a century ago, a warm-hearted Irish minister stopped in a village street to watch a group of boys play marbles.

One of them, dirty and ragged, amused him by his ready wit. The minister talked with the boy, and invited him to his house. In spite of dirt and rags, he felt drawn to him by admiration of his brightness. The boy had not been to school, and the minister agreed to give him private lessons. Progress was so rapid that he was soon sent to a neighboring school, and held his own with the best scholars.

Many years after, the boy grown to manhood, and recognized as a brilliant lawyer and a leader in Parliament, found one day an old gentleman in his room. He recognized at once the friend of his boyhood, and rushing to his arms, said:

"This room is yours; you gave me all these things; you made a man of me."

The minister listened with delight to the brilliant conversation of his protégé, but his tears flowed freely in the evening, as he sat entranced by the eloquence of Curran in the House of Commons. He felt that boys were worth saving.

Franklin's Visit to His Mother.

Dr. Benjamin Franklin, after the decease of his father, returned to Boston, in order to pay his respects to his mother, who had resided in that city. He had been absent some years, and at that period of life when the greatest and most rapid alteration is made in the human appearance—at a time when the querulous voice of the stripling assumes the commanding tones of the adult, and the smiling features of the youth are succeeded by the strong lines of manhood. The doctor was sensible such was the alteration of his person that his mother could not know him, except by that instinct which it is believed can cause a mother's heart to beat violently in the presence of a child, and point the maternal eye with quick and sudden glance to a beloved son.

To discover the existence of this instinct by actual experience, Franklin resolved to introduce himself as a stranger to his mother, and to watch narrowly for the moment in which she should discover her son, and then determine with the cool precision of the philosopher whether that discovery was the effect of that instinct of affection—intuitive love—that innate attachment, which is conjectured to cement relatives of the same blood, and which, by according the passions of parent and child, like a well-tuned viol, would at the first touch cause them to vibrate in unison, and at once evince that they were but different chords of the same instrument.

On a sullen, chilly day in the month of January, in the afternoon, the doctor rapped at his mother's door and asked to speak with Mrs. Franklin. He found the old lady knitting before the parlor fire, and introduced himself by observing that he had been informed she entertained travelers, and requesting a night's lodging. She eyed him with that cool look of disapprobation which most people assume when they imagine themselves insulted, by being supposed to exercise an employment but one degree below their real occupation in life—assured him that he had been misinformed, that she did not keep tavern; but it was true, to oblige some members of the Legislature, she took a number of them into her family during the session—that she then had four members of the Council and six of the House of Representatives who boarded with her; that all the beds were full; and then betook to her knitting with the intense application which expressed, as forcibly as action could, if you have concluded your business, the sooner you leave the house the better. But upon the doctor's wrapping his cloak around him, affecting to shiver with the cold, and observing it was very chilly weather, she pointed to a chair and gave him leave to warm himself.

The entrance of her boarders precluded all further conversation. Coffee was soon served, and the doctor partook with the family. To the coffee, according to the good old custom of the times, succeeded a plate of pip-pins, pipes, and a paper of McEntire's best, when the whole family formed a cheerful, smoking semi-circle before the fire. Perhaps no man ever possessed the colloquial powers to a more fascinating degree than did Dr. Franklin, and never was there an occasion when he displayed those powers to greater advantage than at this time. He drew the attention of the company by the solidity of modest remarks, instructed them by the varied, new, and striking lights in which he placed the subject, and delighted them with apt and amusing anecdotes. Thus employed, the hours passed merrily along until eight o'clock, when, punctual to a moment, Mrs. Franklin announced supper. Busied with her household affairs, she fancied the intruding stranger had quitted the house immediately after coffee, and it was with difficulty she could restrain her resentment when she saw him, without molestation, seat himself at the table with the freedom of a member of the family.

Immediately after supper she called an elderly gentleman, a member of the Council, in whom she was accustomed to confide, to another room, complained bitterly of the rudeness of this stranger, told the manner of his introduction to the house, observed that he appeared like an outlandish man—she thought he had something very suspicious in his appearance—concluded by soliciting her friend's advice with respect to the way in which she should most easily rid herself of his presence. The old gentleman assured her that the stranger was a young man of education, and to all appearance a gentleman; that, perhaps, being in agreeable company, he paid no attention to the lateness of the hour, and advised her to

call him aside and repeat to him her inability to lodge him. She accordingly sent her maid to him, and then, with as much temper as she could command, recapitulated the situation of her family, observed that it grew late, and mildly intimated that he would do well to seek himself a lodging. The doctor replied that he would by no means discommode her family, but that, with her leave, he would smoke one more pipe with her boarders, and then retire.

He returned to the company, filled his pipe, and at the first whiff his powers of converse returned with double force. He recounted the hardships, he extolled the piety and policy of their ancestors. A gentleman present mentioned the subject of the day's debate in the House of Representatives.

A bill had been introduced to extend the prerogative of the royal Governor. The doctor immediately entered upon the subject, supported the colonial rights with new and forcible arguments, was familiar with the names of the influential men in the House when Dudley was Governor, recited their speeches, and applauded the noble defense of the Chambers of Rights.

During a discourse so appropriately interesting to the company, no wonder the clock struck eleven unperceived by the delighted circle; nor was it wonderful that the patience of Mrs. Franklin grew quite exhausted. She now entered the room, and before the whole company, with much warmth addressed the doctor—told him plainly she thought herself imposed on, observed that it was true she was a lone woman, but that she had friends who would protect her, and concluded by insisting on his leaving the house. The doctor made a slight apology, deliberately put on his great-coat and hat, took a polite leave of the company and approached the street door, lighted by the maid and attended by the mistress. While the doctor and his companions had been enjoying themselves within, a most tremendous snow-storm had without filled the streets knee-deep, and no sooner had the maid lifted up the latch than a roaring northeaster forced open the door, extinguished the light, and almost filled the entry with drifted snow and hail. As soon as the candle was re-lighted the doctor cast a woeful look towards the door, and thus addressed his mother: "My dear madam, can you turn me out of your house in this dreadful storm? I am a stranger in this town, and shall certainly perish in the streets. You look like a charitable lady; I shouldn't think you would turn a dog from your door on this tempestuous night."

"Don't tell me of charity," said the offended matron; "charity begins at home. It is your own fault you tarried so long. To be plain with you, sir, I do not like your looks or your conduct, and I fear you have some bad designs in thus introducing yourself into my family."

The warmth of this parley had drawn down the company from the parlor, and, by their united interference, the stranger was permitted to lodge in the house; and, as no bed could be had, he consented to repose on an easy chair before the parlor fire. Although her boarders appeared to confide perfectly in the stranger's honesty, it was not so with Mrs. Franklin. With suspicious caution she collected her silver spoons, pepper box and porringer from her closet, and, after securing the parlor door by sticking a fork over the latch, carried the plate to her chamber, charged the negro man to sleep with his clothes on, to take the great cleaver to bed with him, and to waken and seize the vagrant at the first noise he made in attempting to plunder the house. Having thus taken every precaution, she retired to bed with her maid, whom she had compelled to sleep in her room.

Mrs. Franklin rose before the sun, roused her domestics, unfasted the parlor door with timid caution, and was agreeably surprised to find her guest quietly sleeping in the chair. A sudden transition from extreme mistrust to perfect confidence was natural. She awakened him with a cheerful good morning, inquired how he had rested, and invited him to partake of her breakfast, which was always given previous to that of her boarders. "And pray, sir," said the old lady, as she sipped her chocolate, "as you appear to be a stranger here, to what distant country do you belong?"

"I, madam? I belong to the city of Philadelphia?" At the mention of Philadelphia the doctor declared that he had for the first time perceived any emotion in her.

"Philadelphia?" said she; and the mother suffused her eye. "If you live in Philadelphia, perhaps you know our Ben,?"

"Wao, madam?"

"Why Ben. Franklin, my Ben.; oh, he is the dearest child that ever blessed a mother!"

"What," said the doctor, "is Ben. Franklin, the printer, your son! Why he is my most intimate friend; he and I lodged in the same room."

"Oh, God forgive me!" exclaimed the old lady, raising her watery eyes to heaven; and I have suffered an acquaintance of my Benny to sleep on this hard chair while I myself rested on a good bed!"

How the doctor discovered himself to his mother he has not informed us; but, from the above experiment, he was firmly convinced, and was often afterwards heard to declare, that natural affection does not exist.

Salem Town, L. L. D.

While noble enterprises and great achievements among any nation or people win our admiration, and while we wish all laudable endeavors a full success, irrespective of position, sex or color, we still are conscious of deeper thrills of pride and triumph—if we may use those two words in connection with our weak mortal struggles and attainments—when we find the sons and daughters of poverty, hemmed in by the obstacles besetting the pathway of the poor and humble, bravely surmounting the difficulties of their station and rising step by step toward success and fame.

The name of Salem Town, L. L. D., is familiar as a household word, by reason of his connection with educational books. He was born in Belchertown, Mass., March 5th, 1779, during the dark days of the Revolution. His earliest recollections were connected with the season of exhaustion and poverty following the establishment of American Independence.

His parents were poor, and his opportunities for gaining knowledge from books extremely limited; but, as I have said before, obstacles sometimes operate as incentives to success, if the ardent mind is powerful enough to grapple with them.

His thirst for learning was insatiable, and from all the available sources, scanty though they were, he gathered up knowledge. Desiring a college education, he obtained his father's consent, the Summer that he was twenty years old, that after the farm work of Autumn was finished he might study six weeks with the minister of the town, if, during the Summer, he would commit to memory the Latin grammar without interfering with the necessary labor.

It is hard to imagine why the father proposed this task, unless he unwisely fixed upon it as a penance for his son's aspiring aims. We hope some nobler purpose moved him to the proposition. But young Town was able to meet the difficulty. He tied the book to the plow and studied as he toiled along the furrows, and in this manner committed the whole book to memory. With like perseverance, toiling in the Summer and attending school only a few weeks in the Winter, he struggled on, his brave soul cheered by some inward assurance of success, until, at the age of twenty-two, he was prepared to enter Middlebury College, Vermont, where he completed his regular course with well won success.

His design was to enter the ministry; but after spending nearly a year in reviewing his studies, extending his researches into science and reading history and various standard works, he engaged in teaching, and directly became so interested in this work as to resolve to devote his life to it. His success as a teacher soon secured him a call to take charge of the Granville Academy, New York, where he remained for sixteen years. In 1823, he went by invitation to Powalton, Georgia, and took charge of a large academy there for three years, but did not remove his family. A year later he returned North and fixed his permanent residence at Aurora, on the eastern shores of Cayuga Lake, where he took charge, for many years, of the oldest academy in Western New York. Who can number the minds which, during his many faithful years' labors, he molded to win eminent positions in the world, and who can number the blessings called down upon his noble life by those whom his precept and example won to the right way of knowledge and success?

His reputation for tact and fidelity in imparting learning created for him so enviable a reputation, that various Counties and State Superintendents of schools invited him to devote himself to conducting Teachers' Institutes, in which work he continued as long as his years and strength permitted. He became known in this work in seven of the States, and organized and presided over forty different institutes, and had such a thing been possible, he could have had the charge of as many more.

Dr. Town possessed rare talents for teaching. Being himself a careful student, practical, clear and simple in views and aims, he was able to present problems and the intricacies of study in so plain and simple a form as to make everything easily understood by his scholars. He rightly ranked the teacher's profession above all others, because of its power to make or mar the young and plastic character. Having experienced in his own early struggles the imperfections of the current school books, he undertook to correct the evil.

His first work was the famous "Analysis of Derivative Words in the English Language," and it being the first work of the kind published, after successive revisions it has become a standard book. The same taste for language led him to prepare a "Spelling Book" on an entirely new plan, which is widely known and approved, together with his "Series of Readers," which were so popular that, after many years, they created a demand for another series. His interest and labor in simplifying the processes of education should entitle him to the lasting gratitude of the student world.

Dr. Town was a model of industry. He rightly considered idleness as a vice, and to his latest days work was his especial delight, for he fully realized that without persistent mental and physical labor—bound, as was his youth, in the chains of poverty—he never could have reached the prosperous eminence of his later years.

He was faithful and punctual. He made it a point to do all that he could, binding it down, however, under the greater law of doing whatever he undertook to do as well as he could. He was of a kind and loving nature, and his attachments without "variableness or the shadow of turning." Hopeful, cheerful, smiling, he was like embodied sunlight in the pathway of life. Full of charity, he loved all mankind. He was a patriot, and his native land was an object of reverence, and he most earnestly prayed for its peace and prosperity. His life reached from the early struggle for independence to the terrible disruption of our later war. But being a Christian, humble, ardent, and full of faith, he

"Trusted in Jesus

To bear us safely through."

He lived almost to his eighty-fifth birthday, dying February 24th, 1864. He died at a son's residence, in Greencastle, Indiana, and was buried in a spot chosen by himself, on a beautiful hillock overlooking the lake, on whose pleasant shores he had spent many years of his useful life.

What a lesson this good man's life affords! Full of care for fellow man, searching out for them the smoothest pathway to earthly success, molding their minds to embrace the glorious watchword "Excelsior," and at last, when he had done what he could, his life going out here in full and perfect peace like a Summer day's sweet decline!

Dr. Town evidently strove to interest the scholar's mind. This, no doubt, was his reason for simplifying, or making plain, many studies; and if it were only possible for parents to realize what a responsibility rests upon them in regard to the training of their children before they are old enough, or before circumstances will allow them to be brought under school discipline, we can but believe that the list of criminals in our land would be sensibly diminished. Do not turn your little ones into the street for the sake of getting rid of their noise; do not let them run at large with unknown or vicious associates. When your own time is unavoidably occupied, strive to give them a few good books, or tell them of good men and women, whose lives, like Dr. Town's, have been fully occupied with noble endeavors for the elevation of the masses of mankind. Stamp upon your soul the terrible significance of the fact that an unoccupied mind is like a dangerous waste, liable to be infected and permanently occupied by unclean and savage beasts.

Daniel Drew.

In taking notes of the life of Daniel Drew, we find that he comes into the list of America's eminent men, who have carved their pathway up the hill of fame with energetic and persistent endeavors. In the common reading of the day, we find, too often, the account that a sort of fairy god-mother, or rich uncle from India, steps in to aid and insure success to struggling genius. Fortunately for the youth of America, in all these truthful biographies, they will find none of this unreal, pernicious delusion clinging to the life of the heroes. The road which they traveled; the success to which they attained, is possible for every young reader to-day.

Daniel Drew was born in humble life in the town of Carmel, Putnam County, New York, on the 29th of July, 1797. He was a farmer's boy, with only a chance at the district school during the winter terms to gain a knowledge of reading, writing, geography, arithmetic, and history. His father's death occurred when he was fifteen years old, and the war with Great Britain being in progress at the time, Daniel came to New York City in a North River sloop, and hired himself out as a substitute for a drafted soldier.

Having served out his time in the army, he returned to Putnam County. At that time, the Hudson River counties supplied the City of New York with nearly all the food which it consumed. It was the custom of drovers to scour those counties for every description of live stock; even turkeys were brought in in droves to the New York markets. These drovers were shrewd, energetic men, with a taste for their roving and uncertain life. Young Drew took naturally to this business. It afforded peculiar scope for his independent character. Used to active labor in out-of-door employments, he was especially fitted to this business; and his success soon became marked and secure. His habits were regular and his word reliable. He particularly prided himself upon his reputation for truthfulness and fair dealing, and once an Orange County farmer hesitated about trusting him with a steer until he should get returns from his drove. Much enraged, young Drew remarked, that in five years he would own the ground upon which they were then standing, and before the allotted time, he did own it, and it remains in possession of the Drew family yet.

In 1829, he made New York his permanent place of residence, establishing himself at the corner of Third Avenue and Twenty-third street, where he continued in the cattle trade. His means had increased rapidly, and he purchased the first large drove of cattle that ever crossed the Alleghany Mountains, and at that time he must have been worth at least \$40,000. This drove numbered two thousand head, and had been bought in the villages of Ohio and Kentucky. The journey to market occupied two months' time, and the cattle cost twelve dollars a head to transport them. Now, they could be moved by rail that distance in six days. This proved a fortunate speculation, and so his business steadily increased.

Mr. Drew's connection with the steamboat interest was the result of an accident. In 1834, the steamboat General Lee, running from New York to Peekskill, blew up at Grassy Point. In the new boat which succeeded this one, Mr. Drew was induced by a friend, to take a \$1,000 share. Commodore Vanderbilt built another boat, and put her on this line as a rival steamer. Thus, these two powerful men were pitted against each other, but Drew's "Waterwitch" had the public sympathy, which probably brought about the compromise between the rival factions, and Vanderbilt's boat was taken off the line.

In 1836, Mr. Drew placed two steamers on the night line to Albany, reducing the fare two-thirds. Of course a war ensued between these rivals, and another compromise was effected, order was restored, and the rival lines agreed to divide the trade and the profits.

In 1839, Drew & Co., with Mr. Isaac Newton, for many years known in connection with the North River interests, and who had just completed two fine boats, the "North" and "South America," formed a joint stock company under the name of the Peoples' Line, in which Mr. Drew became the largest shareholder. This line, under his management, has been popular with the public. From time to time new boats were added, and in 1845, the "Isaac Newton" was built for this company. She was

a palace—three hundred feet long, and contained five hundred sleeping berths. She and another new boat, the "New York," were floating palaces on the night line. In 1857, it cost for new machinery and to refit and refurnish these two boats, a quarter of a million dollars.

Afterwards, the "Dean Richmond," the "St. John," and "Daniel Drew"—unequalled by any steamers in the world—were built and added to those already on the line.

Since Mr. Drew became interested in steamboat business, the great railways of the West have been constructed, and the business of New York city has marvelously increased. Mr. Drew changed the character and appointments of his boats to meet the wants of the times, hence his success, although at the start, Mr. Vanderbilt thought unfavorably of Mr. Drew's ability to manage this special branch of business, and advised him not to embark extensively in it.

His attention had gradually ebbed away from the cattle trade and merged into railroad, steamboat, and stock operations. But he speculated on the knowledge of facts, and not with a gambler's reckless passion.

He ventured carefully at first into Wall Street brokerage business. He had for some time discounted notes, and been a sort of general banker for the New York drovers in their extensive transactions.

For twelve years Mr. Drew was associated with Nelson Robinson and R. W. Kelly in the brokerage business on an immense scale. When the two partners died, with but a few years between their deaths, Mr. Drew was left sole proprietor of an immense business, varied, complicated, and involving many hundred thousand dollars. While disentangling this web of speculative enterprises, he remained sort of isolated, and pushed on the business with herculean energy.

In 1850, he and Commodore Vanderbilt purchased a controlling interest in the Stonington and Boston Railroad. They built the handsome steamers "Commodore" and "C. Vanderbilt," and engaged in transporting freight, passengers and mail between New York and Boston. Mr. Drew was the principal owner of the Champlain transportation, and kept five boats running between Whitehall and Canada. He sold out his interest, however, in 1856, and connected himself with the Erie Railroad. He invested much money here, and saved the route from the dangers of insolvency.

In 1857, he became director of the Harlem road, which, at that time, was much depressed in credit. His name, and that of Vanderbilt, here acted as a buoy to keep the interests of the road from sinking, and restored its credit.

His speculations were bold, partaking of the hazardous by times, yet unparalleled success crowned his enterprises. But, his success was based upon fundamental principles that seldom allow a man to be wrecked. He was diligent, economical, intelligent, and temperate. Through every period of his career as a drover, a steamboat owner, and speculating broker, we find that he applied himself with increasing perseverance to his work, and after he became independent in monetary matters, he relaxed not a muscle in his long and steady efforts to bring his fortune to the highest level. That fortune soon counted up into the millions.

Interested in religious matters, he erected in his native place, a handsome church, at a cost of \$20,000. At Sharon, a few miles distant from this church, he largely assisted in building another. He gave to the church in New York, with which he was connected, something near the sum of \$50,000. He gave for the building of a theological seminary in Madison, New Jersey, the princely donation of \$500,000. To this, other buildings were added, and a beautiful tract of one hundred and fifty acres of land. We mention these as his latest gifts, but as he is not considered parsimonious, we may safely credit him with many lesser benefactions. He was noted for his firmness of character; and as he never meddled with affairs beyond his ready comprehension, he was a small talker—being noted, in fact, as a man of work instead of a man of words.

While we neither endorse nor condemn speculation, allowing every person free, unbiased conviction upon the matter, yet we can safely applaud that temperance, energy, and steady enterprise, that won for Daniel Drew, and will win for others, financial success. Meanwhile, young and old reader, whether you are possessed

of the one or the five talents; whether you are ruler over the few or the many things, remember that "the earth is the Lord's and the fullness thereof," and we, but His stewards abiding for a time, and of whom sure record will be kept, and strict account demanded. Improve every talent—there are divers gifts for different natures—and, you know, if you make good use of the faculties, the strength, the genius, which God has given you by-and-by, there will come a "well done, good and faithful servant," that will recompense the toil and privations of life and time.

Salmon P. Chase.

Salmon P. Chase was born at Cornish, New Hampshire on the 13th of January, 1808. His father died when Salmon was nine years of age, leaving only a pittance for the support of his family. But the mother was a woman of great thrift and with the superior energy of character derived from her Scottish blood; therefore she kept her family comfortable and respectable. The subject of this biography received his first instruction from her, but was afterwards sent to a public school at Keene, from which he passed into a boarding-school at Windsor, Vermont, kept by one of his father's friends.

He made rapid progress in Latin, Greek and mathematics.

In the spring of 1820, Bishop Chase—Salmon's uncle—offered to receive the boy into his family and educate him. Mrs. Chase accepted the offer, and during the summer Salmon set out on the then long, toilsome journey to Ohio. The tiresome way was gotten over at last, and the boy safely reached his uncle in the interior of the State. Here he was set to earning his own living directly, being put to the menial tasks of a "boy of all work."

His tasks were so many and troublesome that his studies were seriously interfered with, and with the greatest difficulty could he keep up with his class. He did keep up, however, and in 1821 he was Greek Orator at the Commencement exercises of the bishop's school.

He exhibited great proficiency in English branches and composition. He is represented as pure-minded, utterly abominating anything vicious or dishonorable. He was industriously attentive to business, and his farm labors interfered often with his recitations; but having so great a fondness for books and study, he managed to surpass youths of his own age who had had greater advantages. He was quite indifferent to mere external appearances, finding greater enjoyment in internal culture than in external adornments.

In 1823 Bishop Chase was elected president of the college at Cincinnati, whither Salmon went with his uncle's family. Here his position was bettered. There was less hard work and more leisure for study. He entered the freshman class, and had reached the sophomore class, when his uncle resigned his position and devoted himself to the task of establishing Kenyon College, which owes its existence to him.

This project of the bishop necessitated his taking a voyage to England, and so the whole current of the young man's plans were changed. He was obliged to return to New Hampshire. He made the larger part of the journey on foot, and reached Keene in the fall of 1823. He obtained the position of teacher in the public school; then, as soon as practicable, at Royalton Academy he prepared himself to enter college. In 1826 he was an honorary graduate of Dartmouth College.

At this time Salmon's uncle was in Washington, Senator from Vermont. The young man applied to the bishop to obtain a clerkship for him. His relation refused, as he said, to ruin the nephew's prospects by helping him to a government office.

Young Chase then opened a school in Washington. Among his pupils were sons of Henry Clay, William Wirt and other distinguished men. Every spare moment, when not engaged with his school duties, he studied law under the brilliant Attorney General of the United States, William Wirt. He continued his school until he had finished his law studies and was admitted to the bar of the District of Columbia, in February 1830. He, however, elected to return to Ohio to practice his profession. While struggling with the vicissitudes of fortune, he prepared a compilation of the Statutes of Ohio, prefaced with a history of the State, and enriched with numerous notes. This work, comprising three

large volumes, was a monument of industry, and soon took the place of all other similar works. This achievement won Mr. Chase a high reputation; and in 1834 he was given the position of Solicitor of the Bank of the United States in Cincinnati. In a little time he was given charge of the business of another of the city banks, and his practice steadily increased.

About this time the politics of the country were in a huge ferment—anti-slavery and pro-slavery elements warring against each other—Mr. Chase took sides with the anti-slavery party, bringing prophecies of ruin upon himself. However, in 1843, the Ohio Legislature elected him to the Senate of the United States. In 1855 Salmon P. Chase was elected Governor of Ohio. Afterwards he was urged to accept the nomination for the Presidency, but declined to do so, and instead, gave his support to General Fremont after his nomination at the Convention.

Mr. Chase's reputation as a statesman steadily increased. In 1860 he gave his talents to support the party which nominated Mr. Lincoln for President. Lincoln appointed Mr. Chase Secretary of the Treasury, but he reluctantly accepted the office; he also assumed a part of the duties of the Secretary of War. We find him a prominent actor during the financial crisis of the great struggle. He was active in effecting the issue of government bonds, and in instituting the National Bank system. Greatly assisted by his enterprise, the government was enabled to meet the demands upon it during our exhausting war.

Overtaxed by his severe and trying labors, which were not fully appreciated, in 1864 Mr. Chase resigned his secretaryship, feeling that he was not longer needed to sustain the important changes which his enterprise had effected.

On the death of Chief Justice Taney, Mr. Lincoln appointed Mr. Chase as his successor. In this position he but added to his previous laurels. His decisions command the respect of nations, they are marked by extraordinary force and ability. He discharged the onerous duties falling to his situation with that delicate tact and fine judgment that robbed the decisions of the sting of partiality or partizanship, and hushed even the criticisms of political enemies.

But the mind and body are so hinged together that the over-pressure or taxing of one affects the other.

Mr. Chase's overstrained nerves gave warning of exhaustion. However, he continued to discharge his duties until late in the spring of 1870. His failing strength then warned him to seek a respite from toil. Alas! too late he heeded the voice of prudence. He was stricken with paralysis, and, although under medical treatment, he partially recovered, in about two years after the first attack the second and fatal stroke bore him beyond the woes and wants of time. He died May 17th, 1873, aged sixty-five.

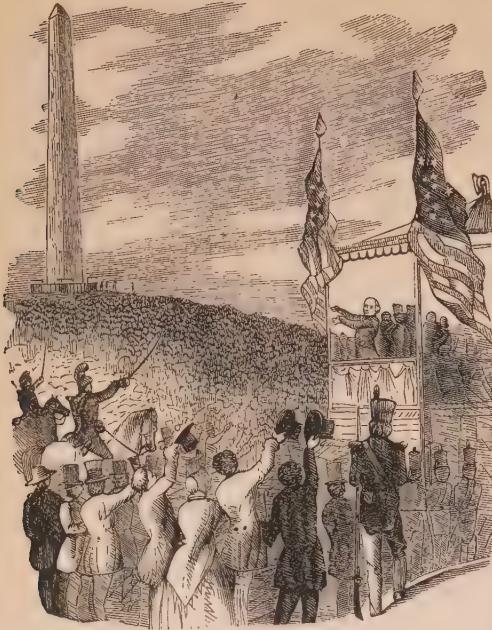
One more of America's illustrious and self-made men.

Pompeii.

Excavations in this "city of the plains," buried many centuries ago, show us that the bakers had their imprint on the bottom of the loaves, that they used pastry molds not very unlike those used in New York and other cities to-day. They had urns for hot water similar to ours, some few glass-bottles, steel-yards for weighing, compasses, parallel rules, and scores of other articles which we sometimes fancy are wholly of modern date. The hot baths of the city, like those in Roman Italy, are the admiration of the present generation, not merely for their extent for which there is no match in modern times, but for the perfection of their arrangement. In architecture, whatever may be said of the usefulness of modern styles; this, at least, will be confessed, that in beauty we hardly equal the ancients.

The ruins of the Forum at Pompeii has pillars, the architecture of which is some of the richest in the world.

While we admire the beauties uncovered in Pompeii, we shudder at the tales thus unfolded to the day—the sudden, fiery doom that overwhelmed them—the tidal wave of molten heat overtook and destroyed them even as they fled with hands laden with gems and gold, and only in that day when all secrets shall be revealed can we know why Pompeii and Herculaneum were taken and other cities left unscorched.



FAME.

BY J. F.

I.

The Orator spoke, and the crowd was hush'd,
Men held their breath as the quick words rushed;
Stern eyes grew tearful, cold hearts grew hot;
Though the hours sped by they heeded them not;
And they swore not their fault if they liv'd not to see
The tyrant dead and their country free.

The Orator ceases—the curtain falls,
The echoes die through the tenantless walls—
They fought in vain, for the Orator's word
Stayed not the sweep of the tyrant's sword,
And the riveted chain clanked on as before,
And the orator's words are remembered no more,
Scanty his guerdon, scanty his fame,
He lives in story, only a name.

II.

The Poet sang and the earth grew still,
And he moulded men's hearts at his own sweet will;
And they ask'd his name that it might be enroll'd—
With the names of earth's greatest in letters of gold—
And his pale cheek flush'd and his heart beat high,
And he said—"Nor my name nor my song shall die."

He paus'd, and earth's voices, silent so long,
Grew sevenfold louder, and drown'd his song.
As the tide of time thro' the centuries roll'd
The rust eat in thro' the letters of gold;
And newer songs seemed sweeter to men,
And the Poet's songs are not heard again,
Save by a few, with less heart than head,
Who grope for his thoughts in a tongue that is dead.
Scanty his guerdon, scanty his fame,
He left in story scarce aught but a name.

III.

The Thinker sat pale in his lonely cell,
And mus'd on the thoughts he had shap'd so well;
And his keen eye look'd through the coming years,
And he saw, thro' the haze of his happy tears,
His shapely thought thro' the world expand
Till its impress was stamped on the sea and the land;
And he thought to himself, 'mid his vision of fame,—
"Surely the world will remember my name."

And the Thinker died, and his thought went forth
To the east and the west, to the south and the north;
But talent such changes on genius rang
That the world forgot from whose brain it sprang;
And men deem'd that the fruit of the thought of the sage
Was the slow grown produce of many an age.
Scanty his guerdon, scanty his fame,
He left in story not even a name.

Eli Whitney and the Cotton Gin.

One day in the fall of 1792, a number of Georgia planters were assembled at the house of Mrs. Nathaniel Greene, widow of the famous General Greene of the Revolution. The conversation naturally turned upon the depressed condition of the Southern States since the close of the war. The planters were generally deeply in debt; their plantations were heavily mortgaged, and there was little hope of their ever being able to pay them off.

Cotton, the chief product, although there was a ready sale for it, hardly paid for raising, on account of the immense amount of labor required to separate it from the seeds. A gentleman present suggested that it might be possible to invent a machine which would gin the cotton (as the process was called), thus saving the great expense of picking it over by hand.

At this juncture, Mrs. Greene, who had been an attentive listener to the conversation, interrupted them with the remark that she would refer them to her young friend, Mr. Whitney, saying, "He can make anything." Eli Whitney was called in from another room, and the subject of the conversation stated to him. He replied that he knew nothing of the process of ginning cotton, and that he had never even seen any of the material in its raw state. The conversation soon drifted into another channel, and the subject was soon forgotten by all save young Whitney.

Let us now review a brief sketch of the life of Eli Whitney. He was one of those sturdy, self-reliant Massachusetts boys, who, like many other Yankee boys, had worked his way unaided through college. Having graduated with high honors, he had come to Georgia for the purpose of teaching. While here he had been taken sick, and, being without money, and without friends, had been invited by Mrs. Greene to make her house his home until his recovery. During his residence with her he had constructed for her many household articles which gave ample proof of great mechanical ingenuity. Hence, her advice: "Apply to Mr. Whitney; he can make anything."

After the conversation above recorded, Whitney repaired to the wharf at Savannah, where he had no difficulty in procuring a small quantity of cotton as it came from the field. He carried it to his room and commenced to experiment with it.

Many of our readers have never seen a cotton ball or pod. To those we will say that the pod grows to about the size of a hen's egg, when it bursts open and a large snow-white bunch of cotton pours out. Adhering firmly to the fibers are several seeds, resembling the seeds of a lemon in size and shape. These seeds must be separated from the cotton before it can be of any use, and to do this, required so much labor that cotton raising was a poor paying business.

All the winter Whitney labored on the construction of the cotton gin, and by spring he had it completed. A number of planters were invited in to see it work. A few balls of cotton were thrown into the hopper and were quickly cleaned. It proved a complete success. With the machine one man could do the work of a hundred without it. It was so simple, too, that it seems almost wonderful that it had never been invented before.

It consisted of nothing but a number of small parallel wires, so close together that the seeds could not pass through. Under this trough saws revolved, snatching the cotton, and separating it from the seeds.

How much good did this invention do Eli Whitney? Not one cent's worth. Although the invention was patented, it was so simple that infringements without number were made upon it. Suit was brought, but Whitney was a Northern man, and no Southern jury would give him a verdict. In 1808 his patent expired, and he withdrew from the contest a poorer man than when he carried those few balls of cotton into Mrs. Greene's basement.

LEARNING VERSUS EDUCATION.—It does not follow that every learned man is an educated man. That man is educated who knows himself, and takes accurate, common-sense views of men and things around him. Some very learned men are the greatest fools in the world; the reason is, they are not educated men. Learning is only the means, not the end; its value consists in giving the means of acquiring, the use of which, properly managed, enlightens the mind.

Lafayette.

Although General Lafayette was a son of France, yet so intimately is he connected with the birth of our national independence, that we claim him as one of our great men by right of adoption.

He was born at Charagnac, France, September 6, 1757. One of his ancestors was a distinguished Marshal, another, one of the most brilliant ornaments of the Court of Louis XIV. His father fell in the battle of Minden, and his mother dying in 1770, he was left heir of an immense estate. He was educated at the College of Plessis, and at an early age married a lady of rank. He was just entering upon vigorous manhood, when republican ideas—owing to the outbreaking of the American Revolution—were filling Europe with fierce unrest.

While at dinner, in company with several notable French officers, he listened to the arguments for and against the revolt of the Colonies, and every pulse of his system beat in sympathy with the brave, independent thinkers of the New World. He then and there resolved to come to America and offer his sturdy right arm for the upholding of her colonial liberty.

He immediately sought a secret interview with the American envoy, then at the Court of France, and offered his services to Congress. The envoy objected on account of his youth, but Lafayette pleaded with ardent zeal, and so conquered the envoy's scruples that an agreement was then made and signed, wherein the youthful hero's services were secured to this country.

The sacrificing ardor of his purpose was seen, as he gave up fortune, the endearments of home, and his high position to aid our cause of freedom. He concealed his intentions from all but a few chosen, confidential friends. Meanwhile, distressing news came from America. There was the retreat from Long Island, the consequent loss of New York, the battle of White Plains, and to make the disastrous chapter complete, the retreat from New Jersey.

Then some of the Americans in France, becoming disheartened, tried to persuade young Lafayette to abandon his purpose. His noble response should forever be engraven on the hearts of American people. He listened to our envoy, Mr. Deane, and said: "You have until now, only seen my ardor in this cause. That it is not an idle sentiment, I will now show you. I shall purchase a ship to carry out officers. We must feel confidence in the future, and it is especially in this hour of danger that I wish to unite my fortune with yours." He secretly raised money to purchase arms and equip a ship, and the better to conceal his movements, he made a journey to England and was presented to the British king. He attended a ball given by Lord Grenville; visited Lord Rawdon, afterwards distinguished in the revolutionary struggle; met at the opera Sir Henry Clinton, whom he met next on the battlefield of Monmouth, and breakfasted with Lord Shelbourne, a warm friend of America.

While Lafayette concealed his intentions, he openly avowed his sentiments. He defended the uprising of the Colonies, and so rejoiced over their success at Trenton, that he won, as above stated, the invitation to breakfast with Lord Shelbourne.

When he returned to France he found that his plans had been discovered, and his departure was forbidden by the king. He continued his preparations undaunted, and in May, 1777, sailed for America. Arriving, after a stormy passage, at Georgetown, he proceeded forthwith to Philadelphia, where he addressed this remarkable epistle to Congress:

"After my sacrifices, I have the right to ask two favors—one is, to serve at my own expense; the other to begin to serve as a volunteer." Brave words! Noble, heroic friend! Is his name sufficiently honored by Americans to-day? Do her children fully appreciate the offering that this man laid upon the altar of freedom?

Congress, in consideration of his zeal and his illustrious name and station, immediately gave him the rank of Major-General of the American army, and he reported directly to General Washington, by whom he was invited to become a member of his military family.

At the battle of Brandywine, while rallying the retreating Americans, he was badly wounded in the leg. Soon after he was appointed to command an expedition into Canada, but as it proved that treachery and artifice caused this intended movement, it was abandoned. On the night of May 19, 1777, General Grant undertook to

surprise Lafayette, at Barren Hill, Philadelphia, but was foiled. At Monmouth, he attacked the British with vigor and success, until Lee ordered him to fall back.

When he had been in America some fifteen months, news reached him that war was likely to be declared between France and England.

His heart, loyal to his native land, now urged him home. He petitioned Congress to let him return home for a season, promising, however, if circumstances would permit, to come back to America. His petition was granted, a sword given him, and a letter of recommendation written in his behalf to the King of France, and the text of the letter of Congress was:

"He is wise in council, brave in battle and patient under the fatigues of war."

He was received with great distinction everywhere, but he never forgot our country, and often found himself wishing that the cost of the banquets given in his honor could be poured into the Colonial treasury.

The threatened danger that had called him home passed over, a heavy cloud exhausting its thunder and lightning in the political atmosphere; then he, with Franklin, used all his influence to induce his Government to send a fleet and army to America. He received this aid, which was afterwards sent to us under Rochambeau. He (Lafayette) rejoined Washington in May, 1780.

He again plunged ardently into the service. He was one of the court that tried and condemned poor Andre. Early in 1781 he was sent with a small force of twelve hundred men to assist in defending Virginia. From his own funds he supplied shoes, hats and tents for the destitute army.

Pursued by Cornwallis, he skilfully retreated until joined by Wayne's force of eight hundred men, when he advanced and placed himself between the British army and large quantities of military stores at Charlottesville. Continuing his retreat, Cornwallis at last took post at Yorktown. Here Lafayette cut off his retreat into the Carolinas and held him until the arrival of Washington and Rochambeau. For his service at the siege of Yorktown, Lafayette was thanked by Washington in public. The success of the United States wedded him eternally to republican sentiments.

After the surrender of Cornwallis, Lafayette returned to France, having expended in the service of Congress *seven hundred thousand francs*—a free and generous gift to the cause of liberty.

At home he proved a great attraction in the highest social circles, and even in the presence of monarchy he dauntlessly advocated republican sentiments and sympathies.

Six years after the independence of America, the French Revolution broke out, and he took an active interest in the cause of the people, as opposed to the rule of kings. In 1789, when he was commander-in-chief of the National Guards, and the abolition of titles was decreed, he laid down his of Marquis, and was known only as General. In 1792, he was sent to guard the frontier. But his brilliant victories at Philippeville, Maubeuge and Florennes did not save him from Jacobin hate and envy, and he was ordered to be arrested. He thought to seek an asylum in Holland as a neutral country, but at an Austrian outpost he was taken prisoner and placed in the dungeons of Olmutz, where his wife, as soon as possible, joined him. Here, in spite of all that England and America could say, he was held a prisoner for five years, and it was not until General Bonaparte exercised his almost omnipotent authority that the noble prisoner was released.

On his return to France the Government there helped him to recover a competent estate, and when the Bourbons were restored, an indemnity of four hundred and fifty thousand francs was allowed him.

When affairs were settled in his own country, he visited the United States, urged hither by his love for his commander-in-chief, Washington. Their affection was deep and strong, like that which should exist between father and son. On this visit he tarried twelve days at Mount Vernon, receiving the most cordial hospitality, and on his departure a large cavalcade accompanied him far on the road to Baltimore.

Once more, after a lapse of years, the hero came to our country hoping to again clasp the warm hand of Washington; instead, sorrowing tears rained from his eyes upon the tomb at Mount Vernon.

David Livingstone.

America has her great men, and Europe has her great men, and other countries have theirs, while there are other great men who belong to us, and to the whole world. They are a blessing to all countries and kingdoms; all nations benefit by their great or heroic deeds; every mind capable of reflection and appreciation, involuntarily do them homage. Therefore, we give in brief, the biography of Dr. David Livingstone.

He was born at Bantyre, in Lanarkshire, Scotland, in 1817. At the age of ten he became a "piecer" in a cotton factory, and for years was engaged in hard labor as a factory operative. An evening school furnished him with the opportunity of acquiring some knowledge of Latin and Greek, and, finally, after attending a course of medicine at Glasgow University, and the theological lectures of the late Dr. Wardlaw, professor of theology to the Scotch Independents, he offered himself to the London Missionary Society, by whom he was ordained as a medical missionary in 1840.

He believed himself called of God to explore the unknown and dangerous country of Africa; to open new avenues for commerce and civilization, and to add materially to the world's geography.

In the summer of 1840 he landed at Port Natal in South Africa.

Circumstances brought him into pleasant intimacy with the Rev. Robert Moffat, himself a distinguished missionary of that section. It was Mr. Moffat's daughter who subsequently became Dr. Livingstone's wife.

For sixteen years he was a zealous, faithful, untiring servant of the Mission Society. During that time, the most important results of his explorations were, the discovery of Lake Ngami, (August 1st, 1849), and his crossing the continent of South Africa, from the Zambezi (or Lecambe) to the Congo, and thence to Loando, the capital of Angola, which took him nearly a year and a half (from January, 1853, to June, 1854). In September of the same year, he left Loando on his return across the continent; reached Linzanti (in latitude 18 deg. 17 min., S., and longitude 24 deg. 50 min., E.), the capital of the great Makololo tribe, and from thence proceeded along the banks of the Lecambe to Quilimane on the Indian Ocean, which he reached May 20th, 1856. He took ship and visited England, arriving in December of that same year. His countrymen awarded him a deservedly enthusiastic reception—warm, affectionate. This was not owing wholly to the discoveries which he had made—although they could scarcely be over-estimated—but to the frank, cordial, simple yet heroic character of the traveler.

In 1857 he published his missionary travels and researches in South Africa; a work of great interest and value to the public.

"In all his various journeying," said Sir Roderick Murchison at a meeting of the Royal Geographical Society held shortly after Livingstone's return, "he traveled over no less than 11,000 miles of African territory."

By his astronomical observations, he had determined the sites of numerous places, hills, rivers, and lakes, nearly all of which had hitherto been unknown, while he had seized upon every opportunity for describing the physical features, climate, and geological structure of the land which he explored; and he pointed out new sources of commerce, hitherto beyond the knowledge and enterprise of British merchants. In 1856, the British Government appointed him consul at Quilimane, whither he returned in the course of the year. A portable steamboat had been constructed for his use in this country, and the explorer, with several scientific associates and a crew of natives, started up the river Zambesi to make discoveries in the countries south of the equator. His movements were anxiously watched, and any unusual length of silence, or rumor of disaster, thrilled the public mind with sorrowful fear. He traveled to Ujiji, and beyond Lake Langanyika in quest of the sources of the Nile.

Those who have read Dr. Livingstone's books must have wondered at his perseverance and moral courage, isolating himself, as he did, from civilization and the luxuries and refinement of the literary world, through all the best years of his life; continually in proximity to the brutal, and too often, utterly hideous black inhabitants of that tropical country; often suffering from hunger and thirst.

Many instances are narrated in his books, where famine drove him to greedily eat of the insects and worms that he might chance to find on the hot, shifting and barren sands of the savage deserts. How often had his little party to defend themselves from marauding and murderous natives—his heroic wife accompanying him on many of his journeys, and finally dying in this wild country, and being laid in her eternal rest under a gigantic Baobab tree near the Zambesi River.

Dr. Livingstone's persistent perseverance in his explorations suggest the idea that it was the engrossing object of his soul and life; and also leads the thinking mind to ask: "Was not he predestined by God to do just this same herculean work?"

Think of this hero-martyr, self-exiled from all his kind—for by times it taxes our faith to believe that many of the natives of Interior Africa are of the same species as man—self-centered; his intellect without outlet or inlet—all overwrought feelings—every keen emotion fermenting within his own mind, until the keenly imaginative and sympathetic spirit feels cramped and suffocated for him. What privations he endured! Hungered by times unto the borders of starvation; suffering the fierce fever of thirst, with no kindred near to lighten the horrors of banishment; and, finally, meeting death in a heathen land—for what purpose? The good of posterity. To open up new routes to commerce, to carry the light of the Gospel to benighted Pagans. It is hard for the slothful lover of ease and comfort to understand the compensation of sacrifice; it is harder for the selfish soul to realize that "it is more blessed to give than to receive;" and it is hardest for the scornful skeptic to believe that God can call a man or woman to fulfil an appointed mission, and so gird up their souls with His strength that "they shall run and not faint" until they come down where eternity's sea is washing the shores of time, but His hand is mighty to uphold.

David Livingstone is our great man, regardless of his nationality—all countries may claim him as an earnest worker and benefactor of the race.

As we gaze upon his pictured face, so earnest and soul-full, we love to think of the "diviner man" in the completeness of the heavenly existence, wearing the victor's crown of victory and immortality.

The End of Four Great Men.

Alexander, after having climbed the dizzy heights of ambition, stood with his temples bound with the chaplets dipped in the heart's blood of countless thousands, and looking down upon a conquered world, wept that there was no other world to conquer. He died in a scene of debauch.

Hannibal, after having to the astonishment and consternation of Rome, passed the Alps, and put to flight the mistress of the world, stripping "three bushels of rings from the fingers of slaughtered knights," and made Rome's very foundations quake, at last fled his country, tormented with fear of the very ones who, at one time, done him the greatest homage, and in despair put an end to his own life, dying in a foreign country unknown and unwept.

Cæsar, after having conquered eight hundred cities, and dying his garments with the blood of a million of his foes; after having pursued his only rival to death, was finally assassinated by his friends.

Bonaparte, whose mandate kings and popes obeyed, who filled the earth with terror and deluged it with blood, for whose deeds Europe sweat, as it were, great drops of blood, and for which the world would fain have worn sackcloth and ashes, died in exile just where he could see his country's banner waving over the deep, but which did not and could not succor the mighty, fallen emperor.

These four men, standing as *bas relief* pictures for all time, point a moral to the world. "The wicked flee when no man pursueth, but the righteous, are as bold as a lion."

What haunting horrors were their nightly guests; but for the humble, unknown believer in the Divine doctrine of the lowly Nazarine, whose aspiring to follow that Lovely Master, has led him to lift up the oppressed and lighten the burdens of the weary, a memory of those acts of love, shall be like music at midnight around their peaceful pillow.

Calhoun.

John Caldwell Calhoun was born on his father's farm in Abbeville District, South Carolina, March 18th, 1782. He was grave and thoughtful as a child, inheriting much of his father's ardent Irish nature, persevering habits, and love of politics.

Political discussions which he heard at the tender age of five years seemed to indelibly impress his mind. Reading, history and metaphysics were his favorite books. So earnestly did he study, that at the age of thirteen his health was seriously impaired.

The father, Patrick Calhoun, dying in 1795, left but little property for the support of his widow and children. Young Calhoun continued to live with his mother, being simply a farmer's boy of the middle classes. Though intensely anxious to acquire an education, he nobly resolved not to cause any sacrifice of comfort on his mother's part to assist him in defraying school expenses. So he toiled hard on the farm for the next five years.

In 1800, his eldest brother, who held a situation in a mercantile house in Charleston, came home on a visit. He was struck with the intelligence of his younger brother, and urged him to prepare himself for the study of law. Young Calhoun was willing to do this if he could arrange to be thorough in the course, otherwise he chose to be a plain farmer rather than a half learned professional man.

His only sister had married Dr. Waddell, who taught an academy in Columbia County, Georgia. This school had long been considered the best in the South. The mother and elder brother decided John should enter this school and prepare for college.

So diligent and earnest was he in his studies, that less than two years' time at this school fitted him to enter the Junior Class at Yale.

Young Calhoun's father had been an ardent democrat; but at Yale the son had the opportunity of having other political views presented to him. He was a close student, and he cultivated the art of *extempore* speaking. In his senior year he was in a class of seventy, with only two or three besides himself holding to republican views.

Dr. Dwight, the distinguished president of the college, once asked Calhoun, "What is the legitimate source of power?"

"The people," instantly answered Calhoun, exciting the doctor to a lengthy argument, to the exclusion of the usual recitation. So successfully did Calhoun meet and parry the learned doctor's assertions, so fluently did he reason out his views, that the President of Yale afterwards declared to a friend that the young man possessed talents that would enable him to become Chief Magistrate of the United States.

In 1804, Calhoun graduated and spent the next eighteen months in a law school at Litchfield, Connecticut. He studied hard and soon won the reputation of being an excellent debater, and was noted for his good habits and pure morals. He also afterwards studied at a law office in Charleston. He was admitted to the bar in 1807.

Some brilliant and happy speeches which he had occasion to make soon after this, in regard to affairs of the government, won for him an election to the Legislature of the State. His grave courteousness won him many friends who were irresistibly drawn towards him by his pleasing manners and the sterling worth of his character.

In 1811, he married and soon after removed to Bath, on the Savannah River.

In November, 1811, Mr. Calhoun, in Congress, was appointed by Henry Clay, who was a speaker, to a membership of the Committee of Foreign Affairs. Now at the age of twenty-nine, Calhoun had fairly entered upon his political life. He soon took a prominent part in Congress, and before the close of the session was regarded as a leading member from the South.

His speeches are reported as able and brilliant, and he was ranked next to Clay for eloquence and talent.

After his six years' term in Congress had expired, he withdrew from the House and accepted the position of Secretary of War, in the Cabinet of President Monroe. He soon after removed his family to Washington, where he resided for the next seven years.

So marked were Calhoun's abilities as Secretary of War, that the powerful State of Pennsylvania regarded

him as a statesman of broad national views, and entirely free from sectional prejudices. About this time he was nominated to the Vice-Presidency, and was elected by a handsome majority; John Quincy Adams being elected to the Presidency in 1825. Before Calhoun entered upon the duties of his office, he removed his family to Fort Hill, in Pendleton, now Pickens District, South Carolina, on an estate left Mrs. Calhoun by her mother. He was again nominated for the Vice-Presidency, on the ticket with General Jackson, and was elected.

We find Mr. Calhoun's political career very active, and like his father in many of his views, he was radical to a fault; but history records him sincere. Yet, of course, so talented a man found much opposition to his views, and not a few political enemies. This is the fate of all eminent statesmen; but where a Webster, a Clay, and a Calhoun met in unity or opposition, it must have been an interesting and potent era.

But as he yielded his opinions to no adverse argument, necessarily his opponents were overbearing and aggressive, until Calhoun, in a measure, withdrew his brilliant intellect from the world and became cold and self-contained; so, naturally, his influence fell off in the Senate Chamber.

Miss Martineau speaks, or complains, of his icy intellectual front, and says of his softer moods, that like tears on the face of a soldier, they touch and appeal to the heart.

During President Jackson's administration a coldness sprang up between him and the Vice-President, causing Calhoun finally to resign. He returned to the Senate in 1832.

After his many terms there, in March, 1843, we find Calhoun retiring from the Senate. At this time Webster was in the Cabinet, and Clay in private life. In 1844, he was appointed Secretary of State by President Tyler. In this capacity he negotiated the annexation of Texas.

Afterwards President Polk offered him the English Mission, which, however, he declined. Then he was returned to the Senate by South Carolina. Thus his active public life went on until he was sixty-eight years old. He died March 31st, 1850.

Daniel Webster, Calhoun's ablest opponent, spoke of him when his death was announced in the Senate, in this wise: "His intellect was plain, strong, wise, condensed, concise; sometimes impassioned, always severe. Without ornament or flourishes, he was earnest and energetic of manner. Those are the grand qualities that have enabled him always to command attention. His dignified, respectful, decorous manner to all is appreciated and venerated by his compeers. The last time that he spoke in the Senate, his clear, thrilling tones, erect carriage and impressive style, might easily have beguiled us to imagine that a Senator of Rome was speaking as when Rome survived. In public and private life he was assiduous in the discharge of duty. He possessed an unspotted character, and honor unimpeached."

Let Calhoun stand outside of political criticism; this brief biography of his active career is not given to argue for nor against his personal acts. If he erred, let us think that it was not intentionally. We hold him up before the world to show what he accomplished single-handed, so that we may point out to the boys and young men of to-day the significant fact.

John C. Calhoun, the peer of Webster and Clay, and the great minds of that era, was the son of poor Irish immigrants; and the highway to eminence which he undauntedly trod is open for you to-day.

May you walk in wisdom's way and find your paths pleasant and peaceful.

The following cure for neuralgia is well worth trying: "A friend of ours, who suffered horribly from pains from neuralgia, hearing of a noted physician in Germany, who invariably cured the disease, crossed the ocean and visited Germany for treatment. He was permanently cured after a short sojourn, and the doctor freely gave him the simple remedy used, which was nothing but poultice and tea made from our common field thistle. The leaves are macerated and used on the parts affected as a poultice, while a small quantity of the leaves are boiled down to a pint, and a small wine glass of the decoction drank before each meal. Our friend says he has never known it to fail of giving relief, while in almost every case it has effected a cure."

Winfield Scott.

Near Petersburg, Virginia, on the 13th of June, 1786, Winfield Scott was born. He was of Scottish descent, and was named for his maternal grandfather, who was regarded in his time as the richest man in Virginia. When Scott was six years old his father died, and the boy was reared by his excellent mother. He grew up on the farm and was sent to school in the neighborhood. When he was seventeen years old his mother died, and the same year he went to Richmond and entered the high school taught by James Ogilvie, where he remained a year preparing for college. In William and Mary College, where he entered in 1805, he devoted himself chiefly to the study of chemistry, natural and experimental philosophy, and a general course of reading in the law. He remained in college about a year and then went to Petersburg, where he entered as a student the office of David Robinson, an eminent lawyer. He studied here two years and was admitted to the bar in 1807, just before he attained his majority. On his first circuit he witnessed the trial of Aaron Burr, at Richmond, for treason.

In June, 1807, occurred the outrage on the frigate *Chesapeake*, which sent a thrill of indignation through the country. President Jefferson called for troops to protect the harbors of the United States against the war vessels of Great Britain. Scott dropped his law books and joined the volunteer troop of cavalry at Petersburg. The troop was ordered to the vicinity of Lynn Haven Bay, where a strong fleet of British, under Sir Thomas Hardy, Nelson's old flag captain, lay at anchor. The volunteers were encamped near the bay, with orders to prevent the British from obtaining fresh water or provisions from the shore. Scott was appointed a corporal, and in his zeal, captured a midshipman and boat's crew belonging to the ships as they sought to pass up a creek in pursuit of provisions.

The affair was reported to headquarters, the prisoners were released, and Scott ordered to moderate his zeal in the future. After this excitement died out he returned to his practice.

Before he had established himself the rumors of war with England increased, and Scott having a taste for martial life, applied to President Jefferson for a commission in the army. In the summer of 1808 he received a captain's commission in the flying artillery of the United States. He set to work to recruit a company, which he did at Petersburg and Richmond, in a short time. He was then ordered with it to Norfolk, from which place he embarked for New Orleans, meeting with a long and stormy passage. But garrison life proved monotonous, and calm following excitement, in the summer of 1809 he once more turned his mind to civil pursuits, and he sailed for Virginia.

Then followed some misunderstanding or misrepresentation, and a penalty was imposed upon him of several months suspension. In the winter of 1811-'12 he was appointed aide-de-camp to General Wade Hampton.

In the spring of 1812, as war was imminent, General Hampton sailed from New Orleans for Baltimore, *en route* for Washington, with his two aids—Captain Scott and Lieutenant Gardner. They reached Washington the next day after war was declared with England. Scott found himself soon raised to the grade of Lieutenant-Colonel. Then followed attacks, skirmishes and defeats—the fortunes of war. He was taken prisoner, paroled, then exchanged. In March, 1813, he was appointed Adjutant-General, besides being made Colonel of his regiment.

His talent for organization and discipline soon distinguished him above his brother officers, as an officer of great ability. In the battles where he was engaged during this turbulent time, his prowess was upon the nation's tongue. At the battle of Lundy's Lane he was unhorsed several times and severely wounded, but his gallantry was rewarded with the rank of Major-General. Congress ordered a gold medal to be struck and presented to him, as a reward of merit. After the army was restored to a peace footing, the President was urged to appoint Scott Secretary of War, but the proposition did not meet with Scott's approval. In 1815 he went to Europe, partly on a mission for the Government, and partly for rest and recreation. He met with flattering receptions abroad, and soon after his return from a year's absence, he married Miss Mary Mayo of Richmond, Virginia.

Seven children were given them by this marriage, four of whom died young. In 1821, Scott published his "Military Institutes," and later his "Tactics" for the army. In 1827, he visited Europe again, and spent more than a year abroad. Upon the breaking out of the Black Hawk War in 1832, Scott was ordered to the West, to take command of the troops. To his humanity and energy is ascribed the peaceful subsequent removal of the Indians beyond the Mississippi. There was some trouble between the President and General Scott about the time of the Florida War, but the soldier was soon acquitted of the charges made against him.

Scott was employed in the winter of 1837-'38 as Ambassador, to arrange the difficulties likely to be made by the Canadian insurgents, and their sympathizers in New York. When this atmosphere was war-like and threatening, he succeeded in restoring order, and the matter of the North-eastern Boundary was settled by a treaty. In 1841 he became General-in-Chief of the entire Army; and establishing his head-quarters at Washington, he devoted his time to promoting the efficiency and discipline of the army.

In 1846 came the war between the United States and Mexico. At his own earnest solicitations he was allowed to proceed with a strong force to the scene of action.

We have not space to follow him in detail, we can but outline his wonderful military career. First, he bombarded and captured Vera Cruz; then came the battle of Cerro Gordo—a mountain pass at the eastern end of the Cordilleras. His force was but 8,500 men opposed to Santa Anna's 12,000; but Scott drove the enemy before his invincible attack. Following this, was the capture of the fortress of Perote, on the 22d of April. On the 15th of May, he occupied the city of Puebla.

Some time followed in idleness, because of the reduced quota of the army, owing to sickness and the expiration of the time of service of many of the volunteers. Scott received orders from the Secretary of War, which his clear judgment saw would lead to trouble. To levy contributions upon Mexicans for the support of the troops would not allay but increase antagonism, and thus he represented the matter; and a controversy arose, and finally Scott declared that the commander in the field understood the management of the army better than the Secretary of War a thousand miles away. Reinforcements were at length received from the United States. They reached Puebla in July, and on the 7th of August General Scott resumed his advance upon the city of Mexico, with a force of ten thousand men. The route is described as laying through a beautiful upland country, abounding in water, and rich in varied and beautiful scenery. The troops pressed forward, and on the 10th of August, the summit of the Cordilleras was passed, and the City of Mexico burst upon their view, lying in the midst of its lovely valley, and surrounded by the strong works erected for its defence. General Scott could readily have captured the city if it had been possible for him to have advanced upon it directly after his occupation of Puebla, but matters were different now. It had been fortified and reinforced, and the American engineers sent out to reconnoitre, reported that it would cost at least 3,000 lives to capture it; but Scott, by the aid of his skillful engineers, led his army through ravines and chasms that the Mexican commander had pronounced impassable, and had therefore left unguarded. In succession, one out-post or fortification after another fell before the invincible soldier-chief. Each breast-work was stormed, each barricade burst through, and on September 14th, 1847, the American army entered the captured City of Mexico, and hoisted the flag of the free over the government buildings. Negotiations for peace soon followed the fall of the capital, and, although American citizens enthusiastically lauded the hero of so many battles and victories, it may serve to sustain other deserving natures, similarly accused, to know that General Scott's success brought into existence many bitter personal enemies, who sought with all the strength of their small natures to tarnish the victor's fame; but he came out of all these petty assaults with honorable acquittal. After this trouble was soothed to peace, he again resumed his position of commander of the whole army.

In 1859, when the dispute about the island of San Juan in Puget's Sound, came near embroiling the United States and Great Britain in war, General Scott was dispatched to the scene, and succeeded in diverting the

trouble by a sort of diplomatic compromise.

In 1852 he had been nominated for the Presidency, but was defeated by Pierce, the Democratic candidate. At the time of the Secession, General Scott, although a Virginian by birth, could see no prosperity for the country but in Union, and gave his whole strength to support it.

But a younger and more active man was needed at the head of the armies of the United States, and on the 31st of October, 1861, he relinquished his position, and retired from active service. In consideration of his great services, Congress passed a special act continuing his pay and allowances. In 1861 he again sailed for Europe for his health, but made no great stay abroad. He lived to see his beloved country emerge from the fiery furnace of its fearful warfare, and died at West Point, May 29th, 1866.

He was a man of herculean strength and endurance, opposed to strife—an advocate of peace; of irreproachable moral character, and invincible courage, the hero of many battles, and yet a lenient foe and victor. Would that all great men were as brave and honorable.

Vanderbilt.

However much opinions may differ in regard to *true* greatness, yet all must acknowledge that he who single-handed works his way up to competence and financial success, from the ranks of poverty or obscurity, has done something worthy of record.

The ancestors of Vanderbilt were of good old Holland stock, such as more than two hundred years ago settled in New York. His father, Cornelius Vanderbilt, was a farmer in comfortable circumstances, dwelling upon Staten Island, in New York Harbor, and here the future commodore was born, May 27, 1794.

The father conveyed his farm produce to New York by way of a boat, and by this means the young Cornelius early acquired a taste for sailing craft. At the age of sixteen, this enterprising young fellow induced his parents to lend him a hundred dollars with which he purchased his first boat, and commenced business for himself, carrying farm produce, passengers, or anything that offered, between New York and Staten Island. He was eager for and willing to accept any job, however humble, whereby he could earn the honest penny.

It was not long ere he had established a good and paying business, which necessitated the purchasing of larger boats. When only eighteen years of age he was part owner and captain of one of the largest ferry boats in New York harbor. His life at this time was very active. He spent his days and nights almost entirely upon the water, carrying freight and passengers, boarding ships, and doing everything that came to hand.

It is said of him that his energy, skill and daring became so well known, and his word, when he gave it, could be relied upon so implicitly, that he was sought for far and near when any important or hazardous expedition was to be undertaken. Neither wind, rain, ice nor snow ever prevented his fulfilling his engagements.

In 1817 he engaged in steamboat transportation, and in 1829 established steamboat lines on the Hudson, the Sound and elsewhere. He built better and faster boats than his competitors, and ran them at the lowest paying rates. He furnished transportation and good accommodations at such low prices that his rivals were unable to compete with him. In 1850 he established a semi-monthly line of steamers to California by way of Nicaragua, which at once became the favorite route to California.

In 1853 Vanderbilt had become a man of great wealth, and he conceived the idea of making a tour to Europe with his family, in a large steamboat of his own. For a single individual to build and equip a noble specimen of model architecture—a floating palace on the ocean—and visit all the courts of Europe in style and dignity, must have been powerfully suggestive to the Old World of the make and muscle and ability of the American citizen. This steamship was named the *North Star*, and the commodore and his family set sail May 11th, 1855. He was cordially received by the authorities everywhere, and his vessel won universal admiration.

After his return he established an independent line of steamers between New York and Havre. In the spring of 1862, when the government needed immediately large additions to its navy, he gave to his country the steamer

"Vanderbilt," which cost \$800,000, and made the quickest time on previous record in crossing the Atlantic.

Soon after this he began to withdraw from marine enterprises and engage in railway investments. He started with the Harlem Railroad, the stock of which had sold as low as forty dollars a share, and had been under extremely bad management. Obtaining a controlling interest in it, he so pervaded the enterprise with his invincible energy and proverbial success, that from being one of the poorest roads in New York, it soon became one of the best. The stocks went up to \$175 per share. He next bought into the Hudson River and New York Central Roads, bought up or leased all the branches and collateral roads that he could, and consolidated them into one great line. He soon had control of the Lake Shore, Southern Michigan, Chicago and Rock Island, and numerous other roads. He controlled railway property to the amount of three hundred millions of dollars, and was one of the richest men in America.

Several years ago, Vanderbilt became interested in Rev. Dr. Deems' efforts to establish a church for strangers in New York. He purchased University Place church and presented it to Dr. Deems to be dedicated as a spiritual home for strangers.

And now Commodore Vanderbilt, at the advanced age of eighty-two, has been called to join that "innumerable caravan" where earthly riches and earthly power avail them not; and in one sense we must call him a great man—a successful, and therefore a powerful man, like Astor and Stewart; yet take heart, toiling brother and sister, opposite whose names the word *SUCCESS* is not written, if ye "have done what ye could," like the widow of old, for the good of others, there's room in the kingdom of heaven for you.

Vanderbilt's success in this life points an excellent lesson to the young—a lesson which they should learn and imitate. His word was as good as his note. When he promised to do, no ordinary circumstance or warring of the elements could prevent his fulfilling his engagement. Herein, depend upon it, lay the secret of his prosperity. A vacillating nature, turning with every prejudice which it may encounter, is sure to make life a failure. Let a man or woman, girl or boy, be prompt to act and sure to perform as they promise, and people who deal with them soon learn to lean upon them as upon a strong staff.

Young reader, if your principles are known to be pure and right, and your word such that it need be neither warranted nor defended, the corner stone of success is laid for you.

"Old John Lawrence."

One of the earliest, if not the earliest book, written on the trotting horse, was written by John Lawrence, of England, in 1800. It is interesting to note how accurate his observations were: "If a young trotter be obtained, it will be perceived in an instant whether he has a natural great bent of speed. But if not, granting that he be thorough shaped, and can trot a mile in four minutes handsomely, he may improve and become capital for a long distance. In training a young trotter, take a long time; keep him almost always within himself; never trot him with a slack rein, nor suffer him to hitch, lead with one leg, or get into a confused run between trot and gallop, but accustom him to pull well and steadily at you. Always oblige him to finish his trot in a walk, never in either canter or gallop; in which latter case cause him to turn round, as is the custom in trotting race. No hack is fit to trot any considerable distance until rising six years old; but it is remarkable that trotters, unlike gallopers, do not lose their speed from old age, many having been known to trot as fast at twenty, and even near thirty years of age as they did in their prime—a solid recompense, surely, for the extraordinary care which these horses demand. As it is obvious that the damage which trotters receive in their feet, joints and sinews, arises from their violent and incessant thumping the hard road, common sense will naturally prescribe moderate and sparing exercise and soft ways. And whenever you see a fellow wantonly rattling his horse over a pavement, you may fairly presume a natural affinity between the skull of the jockey and the materials with which his course is strewed, and, even if you go so far as to wish a happy contact between them humanity herself will forgive you."

George Peabody.

George Peabody was a direct descendant of one of the Pilgrim Fathers, who sought in New England the "freedom to worship God," which their own country did not afford them.

George was born at Danvers, Massachusetts, February 18th, 1795. When eleven years of age, he entered the service of Mr. Sylvester Proctor, who kept a country grocery in the southern part of Danvers. Mr. Proctor seems to have been a man of fine character, and to his counsel and example are due, no doubt, the aptitude and interest which developed themselves as the boy grew to manhood.

In 1810, George visited his grandfather in Vermont, where he tarried for a year, after which he entered a dry goods store at Newburyport, Mass., owned by his brother David. But scarcely was the enterprise started ere a disastrous fire burned the store and its contents, together with the business part of the town. His next move was to join his uncle John, who was about to establish himself in business in the District of Columbia.

In May, 1812, George was in Georgetown conducting his uncle's business in a satisfactory manner. That year there came a British fleet up the Potomac, threatening the capital and neighboring ports. George Peabody joined a volunteer artillery company, and was placed on duty at Fort Warburton. The fort, however, was not attacked, and the company was shortly disbanded. Peabody had for a messmate there, Francis S. Key, the author of the "Star Spangled Banner."

George remained two years with his uncle. At that time, a Mr. Elisha Riggs, proposed to set him up in business; and, although Peabody was only nineteen years old, the partnership of Riggs & Peabody proved successful, and in 1815 the house was removed to Baltimore. Here the business increased so rapidly, that in 1822, branches were established in Philadelphia and New York.

Seven years later, Peabody became the senior partner; Mr. Riggs retiring from business and locating his home in New York.

The first fifteen years after the establishment of the house in Baltimore, were years of constant and persistent labor to Mr. Peabody. He made long and fatiguing tours to collect his bills, through the wildest regions of Virginia and Maryland, and often at the most inclement season of the year. But his strong constitution and good health carried him on, undaunted by obstacles, undeterred by reverses.

So it went on until 1827, when he made his first visit to Europe to purchase goods. After this time, his visits there were frequent, and in 1837 he took up his abode in England. Although thus becoming a foreign resident, his sympathies were intensely American. Many a poor wanderer in London has received his liberal aid; many a stranger shared his social hospitality. In 1852, Mr. Peabody commenced the series of his munificent donations for the public good, and which through the two countries has marked him as a princely giver.

His warmest memories seemed to cluster around the town of his birth.

On the 18th of June, 1852, Danvers was to celebrate her two hundredth anniversary of its township. It was a gala-day, and invitations were sent to all parts of the world wherever a townsman was known to be, and among the rest to George Peabody. He was not able to be present, but he forwarded a sentiment, the envelope of which was not to be opened until his name should be called in due course at the dinner table. His wish was respected, and when the hour arrived, the envelope was opened and the following was found. "Education—a debt due from the present to future generations," and then followed, to his native town for educational purposes, a donation of twenty thousand dollars.

He proposed the erection of a lyceum building, where lectures could be given and a library founded. Afterwards he gave another ten thousand and still farther additions until the sum reached fifty thousand dollars.

A handsome structure was erected called Peabody Institute; it was eighty-two feet in length by fifty feet in breadth, built of brick, ornamented with freestone, and it made a very imposing addition to the architecture of the town. A handsome lecture hall and commodious lecture room carried out the intentions of the donor, and

soon began to exercise a perceptible influence over the youth of the vicinity. The corner stone was laid on the 20th of August, 1853, and the dedication occurred on the 29th of September, 1854, and Hon. Rufus Choate was the orator of the occasion. Donations of books were soon received from Mr. Peabody. The ablest lecturers were secured for the benefit of the institution. The institute has ever since flourished and increased in importance, and during the year 1865 Mr. Peabody made an addition of three thousand five hundred volumes. Since all these princely gifts were made, Mr. Peabody added one hundred thousand to his former endowment; so that the Peabody Institute at Danvers ranks amongst the most important institutions of the country.

In 1852, Mr. Henry Grinnell had generously offered his vessel, the *Advance*, for a second voyage to the Arctic regions under Dr. Kane, and had applied to Congress for means of outfit, etc. Mr. Peabody wrote to a friend in New York, speaking of his interest in the expedition, and saying if government should fail to respond to the request to call on him for ten thousand dollars. Government did not feel interested, and Mr. Peabody's money fitted out the enterprise. Ere long he visited his native land, but strenuously refused all ovations or public receptions.

During his visit to the United States he exhibited his gratitude to his adopted State, Maryland, by founding in the City of Baltimore a second institution similar to that of Danvers. To accomplish this great work he gave three hundred thousand dollars on the spot, and pledged two hundred thousand more as they might need it. He crowned this act with the noblest provision, that the constitution should in no wise be influenced or governed by bigotry or sectarianism in either religion, politics, or philosophy.

In March, 1862, Mr. Peabody presented the City of London the sum of one hundred and sixty thousand pounds for the benefit of the poor. This sum, this magnificent bounty, was wisely intended to benefit the industrious and deserving poor; and he purposed that commodious buildings should be erected in different parts of London—at Spitalfields, Chelsea, Bermondsey, Islington, and Shadwell. These buildings were to have suits of rooms for the working poor to rent and occupy as homes at the outlay of only a few shillings a week.

In the spring of 1865, Mr. Peabody contemplating leaving England for another visit to America invited the trustees of the "poor fund" to his table to dinner. On that occasion he made the following remarks:

"Gentlemen: When I made my donation of one hundred and fifty thousand pounds for the benefit of the poor of London, in March, 1862, it was my intention, if my life was spared until my retirement from business, and Providence continued me in prosperity, to place in your hands a farther gift for the same object. I now intend to make over to you by deed, as soon as possible, one hundred thousand pounds more." What astonishing generosity this man displayed.

No wonder that Queen Victoria sent him a letter of thanks, and an elaborate portrait of herself as a souvenir. The latter was deposited in his native town.

If George Peabody sought fame, how inspiring was his method to obtain it. It will be lasting and untarnished. Contrast his method of winning laurels to that of the Cæsars and Alexanders. They crushed and subjugated the masses beneath their bloody and despotic heels; he strove to raise them from mean and grovelling state and surroundings to lofty aims and laudable ambitions.

"Educate the masses" should be the motto of every philanthropist. Ignorance and sin go hand in hand.

And how many a struggling and feeble mental plant, so to speak, coming under the influence of George Peabody's educational bounty, has been watered, revived, and struck root until it grew a mighty, towering tree, to beautify the landscape and afford shelter and protection to things of weaker growth. Is it not written of such as he: "Thou hast been faithful over the few things—thou shalt be ruler over many."

O, that I less could fear to lose this being, which like a snowball in my coward hand, the more it is grasped, the faster melts away!

If you would be well with a great mind, leave him with a favorable impression of you; if with a little mind, leave him with a favorable opinion of himself.

THE DAYS OF FALCONRY IN THE OLD WORLD. How the Sport was Carried On.

Falconry—the art of training falcons or other birds of prey for the chase—the sport itself being called in English, hawking; in French, *le vol*. A falconry is also the place where such birds are kept. The sport seems to have been first introduced into “merrie England,” as

Louis XIV., the Grand Falconer took his oath from the hands of the king. He controlled royal forests, named to a host of minor offices, sent yearly certain birds to neighboring monarchs, received the birds sent in state by the Grand Master of Malta; and, of course, when majesty galloped out to hawk, this exalted officer had the right to place the bird on the royal wrist, and to present to him the head of the quarry struck by the royal bird.



AFTER THE HUNT.—FEEDING THE HAWKS.

it used to be called, from the north of Europe.

It is amazing what importance the pleasures of the great acquired in the olden time. England and France try to keep up some of the old spirit of the chase; but in these days of railroad and printing presses, field sports sink by their own weight. It is as impossible to save them from extinction as it would be to drive steam out of modern works.

Yet, what an institution hawking was! Under

The sport, as a royal one, dates from the thirteenth century. It was at its height during the Middle Ages. At the beginning of the last century it fell into disuse, and, like many other usages of the past, was swept away forever in the shock caused to Europe by the French Revolution.

The Falcon Family were alone employed in the sports that prevailed, and two or three species were used in preference to others. Of those possess-

ing long wings, the falcon proper and the ger-falcon, and of the short-winged, the goshawk and the sparrow-hawk were in special request; and next to these, the hobby, the kestrel, the merlin, and the buzzard were preferred. The female, which in all the varieties of this tribe is considerably larger than the male, was alone employed in sport, and the common names of all the species apply to that sex, the male having usually some distinctive appellation. Thus, the male of the ger-falcon was called the *Jerkin*, of the falcon proper, the *Pierce Gentle*, of the goshawk, the *Fiercel*; and of the sparrow-hawk, the *Musket*. The word *gentle*, moreover, so often used, has no reference to the disposition of the bird, but to its being reclaimed and duly trained for falconry.

The attire of one of these birds, which was used from the first, is worthy of notice. A leathern *hood*, surmounted with gay feathers, was worn on the head, to blind the eyes; straps, called *jesses*, were fitted to the legs; a small silver bell was attached to each of them; and the *leash*, a long slender strap, sometimes lengthened by a *creance*, or common cord, was used as a tether, while it made a considerable allowance for free motion. The bird was first *manned*—that is, used to the presence of human beings. When it did right, it was fed; when otherwise, it was left hungry; and, when very refractory, a stream of water was directed at its head. One object was to teach the bird to fly at its proper game, and another to bring it back to its master's hand. The first was sought in the case of long winged birds by a *lure*, consisting of a stick or cord, at the end of which were pieces of flesh with a bunch of feathers, or an actual resemblance of the intended prey. A falcon being set loose by one man, another, standing at a distance, waved the lure round his head, and thus tempted the bird to advance and strike at it. A *whistle* was used to bring back the hawk, which, when kept on the hand, required very strong gloves as a defence from its talons.

The bird even showed rank. To be seen bearing a hawk stamped one as of gentle birth. The ger-falcon was appropriated to the king; the falcon-gentil to a prince; the falcon of the rock to a duke; the merlin to a lady. A yeoman could not presume to go higher than a goshawk.

The blindfolded bird was fastened by a chain to the wrist of its owner. He was then carried into the fields, and when a wild fowl or heron, or any suitable prey was seen, the bird was unhooded and let fly. The amusement, which was rather a cruel one, consisted in seeing the falcon strike down its prey. The art of falconry, or hawking, was such a fashionable amusement that people of rank hardly ever stirred out without their hawks perched on their wrists; and a man called a falconer was employed to feed and take care of them.

In the fifteenth century, they were even taken into church by their owners. When thus carried, the bird was hooded with a cap of leather or velvet, surmounted by a tuft of feathers.

The great authority on the subject in England was the work of Dame Juliana Berners, whose rules for the difficult training and use of the birds were decisive.

In the houses of princes the hawks were under the care of pages, youths of the noblest families; and a scene such as Monginot draws (see illustration) was not uncommon. The two youths are, evidently, impressed with the importance of their office. The birds, who have, assuredly, well earned their meal, are gathering to receive the delicate slices of beef, mutton or pork, well cleared of fat or sinew, which are royally presented on a metal dish. The quarry, proof of their skill, lies at the foot of the castle steps, to be taken in when the birds have been fed. A young deer, wild geese and ducks, a pheasant, would do well for a morning's hawking.

In the reign of James I., Sir Thomas Munson is said to have given £1,000 for a cast of hawks—a *cast* denoting two, as a *lese* did three.

The sports of those times, as of later date, were not without their difficulties and perils. Hall relates, indeed, that Henry VIII., on one occasion, nearly lost his life when engaged in hawking. It was the cus-

tom not only to cast off the falcon and follow it on horseback, but also, where the ground was broken, covered with wood, or intersected by marshes or water, to pursue the pastime on foot; in the latter case, each sportsman carried a long pole to aid him in jumping over rivulets and ditches. Vaulting over a ditch at Hitchin, in Hertfordshire, Henry's pole broke and he fell head downward into the deep mud, which almost smothered him; and there he would have died but for one John Moody, a serving man, who happening to be near, leaped into the ditch and rescued the king. "And so," says the chronicler, "God in his goodness preserved him."

Of falconry there are many traces in our choicest literature. Boccaccio, in one of his most touching stories, relates that a reduced gentleman long wooed a lady unsuccessfully; but at length, on her visiting him, having no other means of entertaining her, sacrificed his falcon for her meal, and thereby, though without design, gained her affections. Dante and Spencer, as well as Chaucer, allude to this royal, princely and noble pastime. Shakespeare, thinking of the hawk in her flights, makes Othello exclaim, respecting the suspected Desdemona:

"I'll whistle her off, and let her down the wind,
To prey at fortune."

As hawks were kept hooded until they were ready to fly, we have the word *hood-wink*, meaning to blind by covering the eyes. Thus Shakespeare says:

"We will blind and *hood-wink* him."

The greatest falconer of modern times was one of the Lord Oxforde, who died towards the close of the last century. He is said to have incurred an expense of £100 per annum for every hawk he kept, for it had its separate attendant, and was sent, like its fellows, on occasional voyages to the Continent, for the preservation of its plumage and courage.

Various attempts have been made in England, in recent times, to revive the sport of falconry, but the enclosure of farms, equally with a change in public taste, is against it.

The Grand Falconer was one of the most illustrious officers of the courts of Europe. In the year 1823, the Duke of St. Albans, the hereditary Grand Falconer of England, gave a display of this practice at Redbourne, near St. Albans. The birds, eight fine falcons, were each chained to a section of a cone of wood, about fifteen inches in height and ten inches in diameter at the base. They were hooded and belled, and mostly sat at the top of their posts. Six of them were taken for the sport of the day. A dog having pointed, a hawk was unhooded and loosed; it rose wheeling over the heads of the party sweeping to the right and left; now ascending into the mid-air in the distance, and now obeying the hawk's call. A partridge was flushed and flew with the wind towards the company, when the hawk suddenly crossed its line of flight, and seizing it at a height of thirty or forty yards, bore it in his beak, screaming and bleeding, over the heads of the company, conveying it down to the belt of an adjoining plantation. The falcon was recovered. Other flights, which it is needless to describe, were not so successful, and some of the falcons flew off, and could not be recovered to the hand of the falconer.

In France falconry was most practiced in the time of Francis I., 1515-47. He was the first who appointed a "Grand Falconer in France;" the predecessors of that functionary were simply called "the King's falconers." The grand falconer of Francis I. had an annual revenue of 4,000 florins,* and had under him fifty gentlemen and fifty falconers, the whole establishment costing annually 40,000 florins. Under Louis XIV. the institution was yet more expensive. Louis XVI. tried to reduce the expense of the royal falconry, but without success; and finally the revolution swept it away.

The sport retained its existence in Germany till toward the close of the 18th century. In Italy falconry was a favorite pastime. In the East, the Persians are skillful in training falcons to hunt all manner of birds and even gazelles.

While it flourished in Europe, hawking was the principal amusement of gentlemen and ladies. Knights courted ladies by attention in the hawking field, flying their birds, and restoring them to their mistresses' wrists. A knowledge of the management of hawket was an essential piece of noble education. The vocabulary of hawking was as extended as its ordinances, and several of its terms have been adopted into the language. Hawks' legs were their arms; their talons, pounces; wings, sails; tail, the tram. When the hawk fluttered to escape, it bated; to sleep was to jouk; to stretch one wing back was to mantle; to recross its wings again was to worble.

Mr. Atkinson describes a species of falconry in use among the Kirghiz. The party whom he accompanied set out with an eagle and a falcon, and had not gone very far before they discovered several large deer. In an instant the eagle was unhooded, and his shackles removed, when he sprang from his

* A florin is about \$2.25.

† Hawk is a name indiscriminately applied to birds of the falcon family.

perch and soared up into the air. Having risen to a considerable height, he seemed to poise himself for about a minute, and giving two or three flaps with his wings, swooped off in a straight line towards his prey. He went with great rapidity; his keepers followed him at full gallop, and were about 200 yards off when the eagle struck his prey. The deer gave a bound forward and fell. The eagle had struck one talon in his neck and the other into his back, and with his beak was tearing out the animal's hair. The Kirghiz sprang from his horse, slipped the hood over the eagle's head and the shackles upon his legs, and removed him from his prey without difficulty. The keeper mounted his horse, the eagle was placed on his perch, and he was ready for another flight.

The falcon is a very long-lived bird; there is a tale that one belonging to James I. in 1610, with a gold collar bearing that date, was found at the Cape of Good Hope in 1793, and though more than 180 years old, was said to be possessed of considerable vigor. As an example of their speed may be mentioned the falcon of Henry IV. of France, which flew from Fontainebleau to Malta (1,000 miles,) in a day; and many similar instances are on record.

The falcons are found throughout the world, regardless of climate. There is considerable variety at the different ages in birds of the United States and Europe.

The common or peregrine falcon (*F. peregrinus*, Linn) measures in length about 16½ inches, the extent of wings 30, bill 1½, tarsus 1½, and middle toe 2½ inches. This bird, which is also called the great-footed and the duck-hawk, according to Audubon, was formerly rare in the United States, which it can now hardly be said to be. It flies with astonishing rapidity, turning in its course in the most surprising manner. A favorite prey is the duck, which it seizes by the wing, on the surface of the water, or on land; when within a few feet of its victim it stretches out the legs and claws and drops upon the trembling bird almost perpendicularly; if light it flies off with it immediately to some quiet place; if too heavy, it kills and devours it in the nearest convenient place. Turning the bird it has caught belly upward, it claws off the feathers from the breast, and tears the flesh to pieces with avidity. This species is solitary, except during the pairing of the breeding season, which is in very early spring; it is found in all parts of the United States. The nest is made of coarse sticks, generally on the shelf of some precipitous rock.

The peregrine falcon is distributed over temperate Europe, where the country is mountainous and the sea coast precipitous. This bird, when in full plumage and good condition, for its compact muscular form, great strength, boldness and ferocity, may be taken as the very type of a bird of prey; it is among birds what the lion and tiger are among mammals, fearless in attack, swift in pursuit, strong and cruel.

The merlin (*Falco axalon*, Willoughby), is one of our smallest falcons, but its form is perfect in symmetry. It does not rise above its prey and rush down, but it instantly gives chase, closely following the victim through all its turns and windings, and is generally successful, unless cover is at hand.

"The merlin," says Mr. Lloyd, "is a very bold bird, and seems afraid of nothing. I one day winged one as he was passing over my head at a great height. The little fellow, small as he was, flung himself on his back when I went to pick him up, and gave battle most furiously, darting out his talons (which were as sharp as needles) at everything that approached him. We took him home, however, and I put him into the walled garden, where he lived for more than a year. He very soon became tame, and came on being called to receive his food, which consisted of birds, mice, &c. So fearless was he that he flew instantly at the largest kind of a searull or crow that we gave him. When hungry, and no other food was at hand, he would attend the garden, when digging, and swallow the large earth-worms when turned up. To my great regret, we found the little bird lying dead under the tree where he generally roosted; and though I examined him carefully, I could not find out the cause of his death."

Mr. Ross Cox describes a curious adventure with a hawk. He and his party stopped one very sultry day about noon to rest their horses and enjoy the cooling shade offered by a clump of sycamore trees, with a refreshing draft from a neighboring spring. Several large hawks were flying about the spot, two of which were brought down, and from their great size, huge claws and large hooded beaks, it was clear they could easily have carried off a common-sized duck or goose.

Close to the resting place was a low hill, round the top of which Mr. Cox saw the hawks assemble; and judging that a nest was there, he determined, by himself, to find it out. He therefore cautiously ascended the eminence, on the summit of which he perceived a nest larger than a common-sized market basket, formed of branches of trees, one being laid regularly over the other, and the least of them being an inch in circumference. Around it were scattered skeletons, bones, and half-mangled bodies of pigeons, sparrows, humming and other birds. Next to a rattlesnake and a shark, his greatest aversion is a hawk, and this was not diminished by observing the remains of the feathered tribes, which had from time to time been greedily devoured. "I therefore determined," he says, "to destroy the nest and disperse its inhabitants; but I had scarcely commenced the work of demolition with my dagger, when old and young flew out and attacked me about my face and eyes. In the meantime I roared out lustily for help, and laid about me with the dagger. Three men promptly ran up the hill and called out to me to shut my eyes and throw myself on the ground. I obeyed their directions; and just as I began

to kiss the earth a bullet from one of their rifles brought down a large hawk, apparently the father of the gang. He fell close to my neck, and in his expiring agonies made a desperate bite at my left ear, which I escaped, and in return gave him the *coup-de-grace* by thrusting about four inches of my dagger down his throat. The death of their chieftain was followed by that of two others, which completely dispersed them, and we retired after breaking up their den.

The following strange incident occurred a few months since a short distance from this city:

One of our well-known merchants had gone out on a visit to a friend, at whose house there was a bright little boy, and one day, to please the child, he manufactured a very large kite, and as the wind was strong enough, the kite was raised at once. After it had gone up nearly half a mile, a large crowd of country people collected to admire it, as such a magnificent toy had never been seen in that section before. While the spectators were admiring it, a very large hawk was seen to fly slowly out of a neighboring grove and go directly toward the kite. The hawk approached within a few feet of the strange looking object, and then circled about under it for perhaps five minutes, when he flew above it and again circled around several times. Suddenly he hovered directly over the kite, and after looking at it intently for a short time, darted downward, and striking the paper, passed directly through the kite, coming out on the under side. After this strange experience, which no doubt puzzled the hawk vastly, he flew off a short distance for reflection, but still keeping the kite in view. Not being disposed to give it up so, he quickly returned to the charge, and this time fastened on a long string of rags that were used as a tail to the kite, which he tore and scattered in the air in a savage manner. Finding, however, no resistance on the part of the kite, he became disgusted or scared, and flew away towards the woods, from whence he came. The gentleman says that whenever the hawk made an attack he would retreat a little, as if he expected the strange bird was going to return the assault.

Hawks, and indeed birds of prey generally, are almost always shot at when they come within range of a gun, without any particular reason, except that they are hawks, and of a ferocious disposition; they do no great mischief beyond the occasional stealing of a chicken, hare, grouse, or pigeon, which otherwise would fall a victim to man's appetite; and they are really of positive advantage to the agriculturist, by destroying noxious reptiles and animals and birds injurious to vegetation.

The falcon has been thus described by Proctor:

"The falcon is a noble bird;
And when his heart of hearts is stir'd,
He'll seek the eagle, though he run
Into his chamber near the sun.
Never was there brute or bird,
Whom the woods or mountains heard,
That could force a fear or care
From him—the Arab of the air."

Sponge Fishing in Greece.

Greece has one hundred and fifty boats engaged in the sponge fisheries, forty of which have English diving apparatus. The divers remain under water six hours a day when they go fishing, many of them dying of suffocation, and all of them losing their hearing after a few years of this under-water work.

In the series of articles by Jules Verne, to be commenced in the December 15th number of the *Growing World*, will be given a full description of sponges; their varied shapes; beautiful appearance in the water, and their manner of growing; also, a description of the divers at work as viewed by the inmates of his powerful segar-shaped submarine vessel, while it was sailing down deep under the waters of the Red Sea. From this vessel they could behold all the dangers to which the divers were exposed, and in some instances were the means of saving them from the jaws of sharks and other fierce, voracious monsters of the deep.

The strange and thrilling experiences of these submarine voyagers in their segar-shaped vessel, will be infinitely interesting to both old and young, and we are glad of the opportunity of presenting them in the *Growing World* for the benefit of our readers.

Every girl ought, if she has a mother, to confide in her. And it is natural for girls to do this if their mothers encourage such confidence. If a girl is motherless, then she had ought to have some other safe adviser. An affectionate aunt, or her pastor's wife, or some woman who was her mother's friend, comes next to a mother for such a purpose. Her adviser should be a woman, and older than herself, and of a devout, religious character. A girl who has such a counselor may escape many a trouble—many a snare that would otherwise cause her much annoyance and sorrow.

Jonas Chickering.

Jonas Chickering, the founder of the firm of Chickering & Sons, was born at New Ipswich, N. H., on the 5th of April, 1768. His father, Abner Chickering, was a steady, industrious, good-natured, and sensible man, possessing but a very moderate supply of this world's goods, and in no way particularly distinguished from the common men around him. By profession he was a blacksmith, but the demand upon his professional skill was not great, owing to the thinly settled section of country in which he lived. In connection with working at his trade, he cultivated a small farm to help support his family.

The early years of our hero's life were passed much like those of other boys. He helped on the farm, and assisted sometimes in the blacksmith shop; but in neither occupation were his tastes suited. He had great constructive powers. He manufactured whistles and knock-marks with his knife in leisure hours, yet there was nothing remarkable about this; many a boy has done the same. He appeared to be only of average ability; and, boys, he earned no success out of no better materials than his closely at hand.

He had few facilities to acquire an education compared with this time; books were scarce, reading matter a luxury. Jonas appreciated the value of knowledge, and availed himself of such opportunities as he could obtain to secure it; but he lacked that intense thirst for learning that characterizes some natures, and which gives success; only he had energy, perseverance, and a willingness to work, that are better characteristics than brilliant spasmodic endeavors and achievements.

At the age of seventeen, he was sent to learn the cabinet-making trade, at which he served an apprenticeship of three years. He was faithful, and became a skilful workman. He knew his business thoroughly, and that, of itself, is an element of success. While working at his trade, Jonas developed that mechanical skill which afterwards was of great service to him in a more elevated sphere.

He had a great taste for music; learned to play on the flute, and became quite an authority in his circle in regard to musical matters. After the flue he became familiar with the clarinet, and learned to read music with great readiness. He was twenty-one when he first became acquainted with the pianoforte, there being but one in town. This was a disorganised and disarranged one, sadly needing repairs.

Jonas being a mechanic, and rather a professor in music, was allowed to manage this one about as his fancy dictated. He, therefore, took this one apart, inspected its formation, studied the uses of the various parts, discovered the nature of its injuries, and successfully repaired them, thus receiving his first practical lesson in the future business of his life. It is believed that to this incident is due the "new departure" which carried him into other than the cabinet-making business.

In 1818 he went to Boston, obtained employment with a cabinet maker, but deep in his heart was the project as soon as it should become practical to make pianofortes. Both his mechanical tastes and his love for music pointed out this course. In 1819 he entered the employment of a pianoforte manufacturer. His entire industry, his love for his work soon won him the reputation of being a capable, trustworthy workman. He studied all the intricate branches of the manufacture, and became master of the elegant machinery. Pianofortes, not manufactured into England until 1792, were a scarce article in this country, and only rarely found in the families of the wealthy. But two names precede that of Chickering in the annals of piano-making; they are Osborne and Townsend. So he commenced with an open field for labor and a wide reach for his pianofortes.

Perceiving that the existing instrument possessed many imperfections, he kept his talents busied with improvement and remedying its defects. He sought to increase its beauty and tone, to enlarge its compass; finally, to place within the same frame, as it were, the soul of music. He studied the most accurate and abstract principles as applied to music, like the influence of atmospheric changes, the theory of vibration, and the science of acoustics, as well as the human subject. He kept his whole mind and every sense to attain a standard of perfection in his chosen profession.

In 1838 he formed a partnership; but the firm of

Stewart and Chickering "was not long lived;" and then he went on alone, hampered for want of capital but improving in knowledge of his business. In 1830 he associated himself with Captain John Mackay, a retired shipmaster, who took charge of the financial part of the business, leaving Mr. Chickering master of the mechanical department.

Business now went on prosperously. A new building was erected that would accommodate a hundred workmen, which, at that time, was considered an enormous provision, but every department was reduced to a fine system, and they began importing their own materials. The business was conducted on that generous scale that warranted success. Constantly throwing their profits back into the enterprise, their progress was wonderful.

In 1841 Mr. Chickering was unfortunate in the untimely death of his partner, who was wrecked at sea and perished. Mr. Chickering undertook to buy out the interest of the deceased partner at a cost, it was reported, of half a million dollars. He met all his notes at maturity without one failure. The establishment turned out fifteen hundred pianos annually.

In 1850 a deplorable fire burned his factory to the ground. His pecuniary loss was reckoned at \$200,000. Undaunted by misfortune, he set about erecting another establishment—an immense building, second only to the Capitol at Washington. We give the statistic of this building: It fronts 245 feet on Tremont street, with two wings, each 362 feet in length; the width of the building being 50 feet. In it are five acres of floor room, lighted by 400 windows containing in all 11,000 panes of glass, and heated by steam through 11 miles of iron pipe. In the erection of this building were used 9,000 tons of stone, 1,665,000 feet of lumber, 8,000,000 brick, 2,500 casks of lime and cement, and 800 casks of nails.

In one department of the building is always stored \$50,000 worth of lumber in order that it may be perfectly seasoned for use; that used for sounding-boards is kept one year in a room heated by steam to a temperature of ninety degrees. Mr. Chickering did not live to see the completion of his manufactory. He died in 1853 of rupture of a blood-vessel. His sons, however, followed out their father's plan, and the firm held the title of "Chickering & Sons." The business under their management gave employment to five hundred hands, turning out about forty pianos a week.

We are happy to have it stated, that Mr. Chickering's success did not, as is too often the case, render him selfish and uncharitable. He was kind to his laborers, and generous in his business life.

There is one pleasing incident connected with Jonas Chickering's life which will interest the reader. One day Richard Sears Willis, brother of the scholar poet, N. P. Willis, wandered into the establishment. He was only a boy, but a passionate lover of music, and no mean performer even then; and, sitting down to a piano, he began playing an air from Beethoven. Struck by the masterful touch on the ivory keys, Mr. Chickering offered the boy a situation in the establishment; but the boy kindly refused the offer and went away. Years after, as a man, Richard Willis returned, and chanced again to enter the building. Again he began playing, and Chickering's acute senses recognized the wizard touch. Appreciative of that master hand, he frankly inquired into the stranger's prospects, and offered him five hundred dollars a year for four years musical study in Europe. Young Willis was wise enough to accept this philanthropic offer to attain the object of his hopes and aspirations—a musical education. His success in life, as a composer and musical writer, he attributed wholly to Jonas Chickering's benevolent and providential assistance.

Seward.

William Henry Seward was born at Florida, in Orange County, New York, on the 16th of May, 1801. He was the son of Dr. Samuel Seward, a prominent citizen of New York, who was for seventeen years the Judge of the County Court of Orange; young Seward was a bright, intelligent lad, and learned rapidly at the country school at which he began his education. He made such rapid progress that when he was but nine years old, his father sent him to the Farmer's Bull Academy, at Goshen, the country seat. He spent several years there, then returned to his native town, where he completed his pre-

aration for College. In 1816, at the age of fifteen, he entered Union College; he studied hard and maintained a high position in his class, excelling in moral philosophy, rhetoric and the classics. In 1819, he entered the senior class, and during that year spent six months in the South teaching school. Later in the year he returned to College and graduated with distinction.

He decided to adopt the law as a profession, and for that purpose entered, as student, the law office of John Anthon, Esq., of New York. Afterwards he returned to Orange County, and completed his studies under John Duer and Ogden Hoffman. In January, 1822, he was admitted to the bar, and removing to Western New York, located himself at Auburn, where he formed a law partnership with Judge John Miller, of that town. This was destined to become a closer tie, for two years later, Mr. Seward married the Judge's youngest daughter. Mr. Seward devoted himself with great zeal to his practice, and soon found himself in possession of a large and lucrative practice. He soon won the reputation of being a learned counsel and eloquent speaker. He was naturally a politician; in 1824, though but twenty-three years of age, he was chosen to draw up the "Address to the People," issued by the Republican Convention, of Cayuga County; it was pronounced, by competent judges, to be a very able address.

In 1837 he warmly espoused the cause of Greece, then struggling against Turkey, and made many speeches in behalf of the patriot cause. He took a leading part during the Presidential campaign that ultimately elected General Jackson in the chair of State.

In 1830 he was nominated for the State Senate, and was elected, and took his seat as the youngest member of that body; he spoke often and ably upon the subject of reform, and was looked upon as a leader by his party. He favored the repeal of the law that imprisoned for debt, and urged that the free school system should be inaugurated on a better basis.

In the summer of 1833, Mr. Seward made a brief visit to Europe for rest and pleasure. During his absence he corresponded regularly with the Albany "Evening Journal." His letters were widely read and won him considerable credit. Returning in the fall of 1833, he was in his place at the opening of the Senate in the winter of 1833-'4. The controversy over the National Bank, in 1832, gave rise to the Whig party, with which Mr. Seward soon united himself. In 1834 he was nominated as the Whig candidate for Governor of New York; William L. Marcy, his opponent, was elected. In 1838, however, Mr. Seward was the successful candidate for the position. In 1840 he was re-elected. His enemies even, admitted that he made an excellent Governor. During his term, various reforms were inaugurated, in banking systems, in the management of prisons, in election laws, besides imprisoning for debt was abolished.

In his administration of justice to offenders, neither arguments nor intimidation moved him from his course. In 1843, Seward declined a "third term," and for the next six years devoted himself to his practice. His business, during that period, lay chiefly in the higher courts of the State, and in the District and Supreme Courts of the United States. He was very successful as a lawyer, and is described as a man generous to the unfortunate, and willing to defend the oppressed. Some instances are on record of his being ridiculed for chivalric support to human but unpopular subjects.

He supported General Taylor for the Presidency in 1848, and "stumped" the States of New York, Pennsylvania, Ohio and Massachusetts in his behalf.

Mr. Seward was a bold anti-slavery man and advocated that no compromise should be allowed upon the subject. He astounded the whole country, at that time, when, in connection with the subject of slavery, he announced that "There is a Higher Law than the Constitution."

He favored the passage of the Homestead Law, and was one of the earliest friends of the Pacific Railway.

When the Kansas and Nebraska Bill came up he threw all his force against attaching slavery to those territories. Yet, among the Southern Senators he had many warm, personal friends.

In spite of his activity in Congress, he found time to give to other public services; in 1854 he delivered the annual oration before the literary societies of Yale College, and in October of that year, argued the celebrated "McCormick Reaper Case," in the United States Circuit Court, and one of the most famous causes in our annals.

In 1855 Mr. Seward was returned to the Senate for a second term of six years, in spite of the most determined opposition of antagonistic politicians.

In 1859 Mr. Seward made a second visit to Europe, and was absent some months.

In the Spring of 1860, the National Convention of the Republican Party met at Chicago to nominate a candidate for the Presidency; Mr. Seward was looked upon as the first man of his party, and the first ballot gave Seward 173 votes, to 100 cast for Mr. Lincoln; but Mr. Greeley was at that time offended with Seward, therefore he threw all his influence on the side of Lincoln, and so the nomination was secured for the latter.

The decision was accepted by the defeated candidate with unruffled front. Upon the inauguration of President Lincoln, Mr. Seward was appointed Secretary of State. He accepted the position, and gave his whole energy to the support of the Union. He possessed the entire confidence of the President, and his conduct of the State Department was of such decided and statesman-like character, that perhaps, no other man could have so well filled the situation, although, of course, he had many political enemies.

The criticisms upon Mr. Seward's measures became so pointed and severe, that his party thought it wise to suggest his resignation of office; but Mr. Lincoln trusted him, in spite of all that critical enemies might say, and after his inauguration for the second term, he continued him at the head of the Cabinet.

Early in April, 1865, while driving through Washington, Mr. Seward was thrown from his carriage and seriously injured; his arm was broken and both sides of his lower jaw were punctured; he was conveyed to his residence, and for some time it was believed that his hurts would prove fatal. While lying in this helpless condition he came near falling a victim to the conspiracy that resulted in the murder of President Lincoln. One of the conspirators was assigned the duty of assassinating the Secretary of State as he lay helpless on his bed. The murderer forced his way into Seward's chamber about the same moment that the fatal shot was fired at the President, and severely wounded Frederick Seward, who, unarmed, sought to defend his father. The man acting as nurse was struck down, and the assassin sprang to the bedside, stabbed the helpless Secretary three times in the face and then fled, supposing that the victim was killed. Mr. Seward rallied, and after some weeks was on his feet again. He remained at the head of the Cabinet for the next four years.

Mr. Seward had much to do with negotiating the purchase of Russian America, which is known to us as Alaska.

He was much criticized and misrepresented by his enemies and those who differed with him in opinion—the certain fate of statesmen and all successful people. Mr. Seward done well, in not allowing each accusation against him to result in recrimination and quarrels. He left it for time and history to pronounce upon his character.

On the 4th of March, 1869, he withdrew from public life. A few months later he made a visit to Mexico, from Mexico he went to California. In August of that year, having been joined by several members of his family, he sailed from San Francisco to Japan, and successively visited that country, China, India, Palestine, Egypt, and the principal countries of Europe.

He was received with appreciation abroad, and in 1871 he returned home and began the preparation of a narrative of his "Travels Around The World." While engaged in the task he was seized with his last illness, and died on the 10th of October, 1872.

The American people have already come to appreciate his talents and labor in a far greater degree than when he lived; for alas,

"Lives of great men

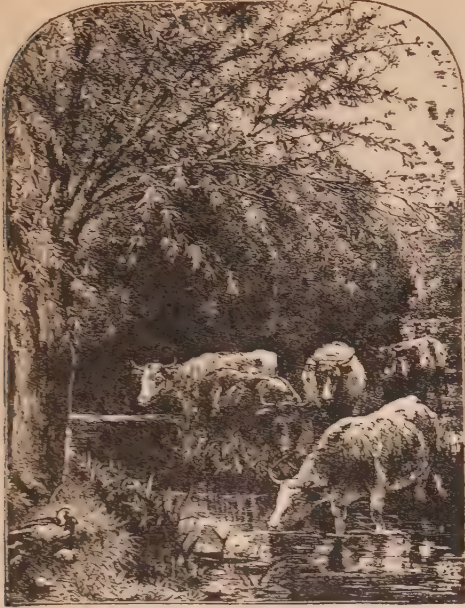
All remind us

That the nobly striving soul,

Scarce receives a tithe it merits,

'Till 'tis past life's trying goal."

A PONY EIGHT INCHES HIGH.—His Highness, the Nawab of Lohare, sent a remarkably diminutive Nepah pony, which is only eight inches high, to the young Maharajah of Batiala. The pony is a perfect miniature of a well-bred horse, and is highly valued by the natives.



ATHIRST.

High is the summer sun,
And the cattle pant in the heat,
But with their foolish feet
They find their way, every one—
They find their way to the stream,
Where the willows gloom and gleam
Over the shady pool.
The water is sweet and cool,
And the tall grass cool and sweet;
They stand in the midst of the stream,
And drink, and the water drips
From their full contented lips.

Then to the shady place,
From her nest among the reeds,
Her brood the wild duck leads,
And the water lilies rise,
Each seeking with upturned face,
To drink the light of the skies,
And each has all that it needs.
In the wind the willow waves,
The flower has all that it craves,
And glows to its heart of gold.
Sunshine and shadow meet—
The harmony is complete,
Perfect and manifold.

Only let man intrude—
Man with his spirit pain,
Man with his search in vain
For an infinite endless good—
And where is the harmony then?
Away his search hath a goal.
Tell me not, leaden-tongued seer,
No water of life is here
For man with his living soul
Athirst for a living God.

One Great Lesson.

In our journey through life, wherever we are and whatever our situation or avocation, we are continually learning lessons. Life might be termed a grand school and we the students, for no rational being can live without this constant learning of something. These lessons may be simple, but they are numerous, and engage our time from the cradle to the grave.

Though these lessons may be simple and easily acquired, there is one very important lesson in life that is not to be acquired in a day, or even in years, by some. Many, indeed, have spent their whole life without learning it. It is simply to learn how little we know and how much we do not know. Simple as this may seem to

some, there is much embraced in it, and I think when this lesson has been once mastered by any one, he has learned the greatest and most important lesson to be known in life.

It seems very natural for us, in this age of the world, to overestimate the value of man's acquirements, knowledge and progress in the arts and sciences and in the hidden secrets of nature. This age is so vastly superior to former ages in advantages, that many seem to think that man has reached his highest perfection of knowledge. But this cannot be true, for something must yet remain to learn, no matter what the extent of his knowledge.

We do live, truly, in an enlightened age. For six thousand years man has existed on the earth, and has continued to progress, so that we have before us the inventions and discoveries of preceding ages, and on this foundation our knowledge is built.

But have the great discoveries all been made? And is there no room for further progress? If we believe those who are capable of knowing, we shall find that in their opinion we are just entering the great age of discoveries, and that man's knowledge, compared with what remains to be known, is infinitely small.

Some may ask where is the field for progress. They are directed to the sciences. Astronomy is a science nearly two thousand years old, but is it complete? Do we know all that is to be known about it? Far from it. Natural philosophy and geology, too, are old, yet regarding them, hundreds of unanswerable questions might be asked. Chemistry is in its infancy, and so on through the whole catalogue we see there is plenty of room for genius to develop itself.

Through every day of our lives we experience the light and heat; no one can tell us what they are. Though man has made electricity his servant and one of the most important agents in civilization, he knows nothing of its nature.

Then, too, how little we know of man himself and his relation to the Infinite! What is his future to be and what is his eternal soul, and in what manner does it operate on his material body? Will the future answer it? The present cannot.

In art, too, there is room for work. Inventions are called for every day which are as yet unknown. But the future will surely bring them out.

Genius must not slumber. There is plenty of work and plenty of room. What the past has left undone the future must accomplish.

So we see knowledge is boundless. Having learned all we could on earth, something would remain. Man may progress as long as he remains in this world, and it is only fair to presume that the process continues in the next, and that with enlarged capabilities he continues to learn.

We see from this that there can be no such thing as a complete education, at least on earth. But it is not seldom that we hear of persons who, having graduated at some college or place of learning, are spoken of as having completed their education. Such persons sometimes boast that they have learned all there is to know, and are hence incapable of receiving instruction. How mistaken this idea! One thing is lacking in such: they know not how little they do know. The greatest and wisest men that ever lived considered themselves but little nearer a perfect education than the child or youth. Here, then, is the application of our great lesson: Having learned how little we know, we are wise. We are then ready to progress onward, knowing ourselves to be what we really are, mere beginners in the great field of knowledge. Then, too, we should try to progress. Though we may never become eminent or notorious, though the world may never hear of us, we may become useful and honorable members of society by the acquirement of whatever degree of knowledge lies in our power.

Though we may never become Newtons in every respect, we may in one, and that is in a knowledge of our own insignificance. Near the close of his illustrious and eventful life, he gave utterance to these beautiful and touching words, which are so applicable to us that all should remember them: "I seem," he said, "to have been only like a boy playing on the sea shore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me."

Farragut.

BY M. J. CUMMINGS.

In glancing over the lives of our great men it is hard to say who shall have precedence, so mechanically taking the first one that comes to hand we have before us the veteran hero, Farragut. He was born at Knoxville, Tennessee, July 5, 1801. His father emigrated from the island of Minorca during the Revolutionary War, marrying a Scotch girl of North Carolina. Soon after the marriage they migrated to Knoxville, where Admiral David Glascoe Farragut was born. A part of his name was given him in honor of his father's friend, David Porter, a well known naval officer. His influential namesake, Commodore Porter, took him on board the Essex in the rank of midshipman when he was but eleven years old. His first cruise was two years in length. When he was thirteen he entered school at Chester, Penn., where he was taught military and naval science. After a year's study he obtained a position on the flagship of the Mediterranean squadron, where two years were passed. So promising were his abilities that he was thus early promoted to a lieutenantcy, and served three years under Lieut.-Com. Kearney, and was engaged in capturing piratical establishments about Cuba. Following closely his eventful career, we now find him for a term of years on shore duty in Norfolk Navy Yard. Here he married his first wife, Miss Loyall, a daughter of a prominent citizen of the place. Then we find him longing for the sea again, where he serves in the Brazilian squadron two years more, meantime losing his first wife, and afterwards marrying her sister, by whom he had one son, Loyall Farragut.

On shore again for some years, until he is ordered on board the war-sloop Natchez as Lieut.-Commander, bound for the West Indies. In 1840 he was promoted commander of the sloop-of-war Decatur for a cruise in the South Atlantic. Three years after we find this wonderful man enjoying his first leave-of-absence, but he was ere long back again to Norfolk, taking command of the receiving ship Pennsylvania. After this one more year in the West Indies; then inspector of Ordnance, from whence he gradually found himself stationed in New York. He was at Norfolk when the rebellion broke out, and his friends clustered about him to secure his services for the South; but birth and natural ties weighed nothing in the hero's breast against the fine and inborn sense of loyalty. As they insisted upon his joining the Confederacy, he looked toward

"The old flag floating still,
That o'er our fathers flew,
With bands of white and rosy light
And field of starry blue;"

and answered his tempters: "Gentlemen, I will see you accursed before I will lift an arm to strike that flag."

When the navy yard was destroyed by Commodore McCauley, Farragut left the city and returned to New York. Here he had an interview with McCauley, and learned the circumstances connected with the destruction of the noble vessels at Norfolk. "How could you do it?" questioned the veteran hero, with his eyes swimming in tears at the thought of the sacrifice.

"My officers were false; I had no one to depend upon."

"Why did you not send for me?" vehemently questioned the invincible officer; I could have been trusted."

While Grant filled regimental rolls in Governor Yates' office, and mustered eager volunteers into the army, Farragut's genius worked ceaselessly on duties connected with the navy. By-and-by, Donalson was won, and Shiloh's battle fought; then there issued the order for Farragut to go and aid Butler's army at New Orleans. Out from Hampton Roads his good ship Hartford sailed, flying aloft the flag of the free. To the fleet was added a formidable squadron of bomb-vessels under command of Admiral Porter. His orders were, with such vessels as might be detached from the blockading squadron, to ascend the Mississippi, capture New Orleans, and then pass on to meet the fleet at Cairo. Of the two entrances to New Orleans, by Lake Borgue and Lake Pontchartrain, and by the Mississippi, that by the lakes was undefended, the shallowness of the water being sufficient protection. On the defenses no skill nor expense had been spared. Fort St. Phillip and Fort Jackson, built by the United States, had been strengthened by water-batteries and gunboats.

Farragut, by indefatigable labors, worked his forty-six vessels across the bar and commenced a bombardment. Taking the utmost precautions to protect the squadron, the fleet being signalled prepared to pass the forts. It is seldom that history records anything so exciting as the terrible two-hours' fight that followed. Farragut was the victor; the rebel fleet was captured; the forts silenced, and the watery highway to New Orleans was clear; and soon the gallant officer held possession of the city. Following the surrender of Baton Rouge and Natchez, he went on to Vicksburg. After the bombardment there of June 26th and 27th, Farragut's fleet passed the fort and united with the Western flotilla.

In the year following, our naval hero, now ranking as Rear-Admiral, took command of the Mississippi and Red River operations in conjunction with the army. Near the end of January, Grant's army and the Mississippi flotilla, under Rear-Admiral Porter, commenced the siege of Vicksburg. On March 14th, he ran by Port Hudson, and communicating with the Union commanders, he blockaded the Red River, preventing all supplies from Texas reaching Vicksburg and Port Hudson. In May he returned to New Orleans, but continued to direct operations against Port Hudson until its capture. He subsequently turned over to Admiral Porter the command of the squadron north of New Orleans. The Mississippi flotilla at the end of the year numbered 100 vessels carrying 462 guns and 5,500 men; thirteen of these vessels were iron-clad. The operation of the West Gulf squadron in the succeeding year was chiefly confined to the blockade of Mobile Bay.

In July, 1864, he made an effort to reduce Mobile. For this purpose a large fleet was assembled the Hartford still being his flag-ship.

In commanding his battle-ships Farragut made it a rule to attack the enemy at floodtide, so that if a vessel became disabled she would drift with the current into the fight. In this battle Farragut allowed the Brooklyn to lead in the attack, and these are his reasons for so doing:

"I yielded to the urgent request of the captains and officers, and permitted the Brooklyn to be the leading ship of the line, because she had four chase guns and an apparatus for picking up torpedoes, and also because they said that the flag-ship must not be too much exposed. I believe this to be an erroneous movement, for exposure and danger is the penalty paid for rank."

It was during this engagement that the heroic naval officer lashed himself to the rigging of the flag-ship, that as commander he might view the whole fight. His vessel and the Brooklyn were lashed side by side, the Brooklyn lying nearest the enemy's fort. He won this fight, and the promotion to Vice-Admiral, afterwards returning to blockading duty in the Gulf. Toward the close of the war he was sent to James River, and after peace was declared he was sent in the Franklin to cruise in European waters, where he met with that distinguished admiration which he deserved.

Soon, alas, his health failed him, and suffering keenly, death at last came as a relief to the hero; and after "Life's fitful fever he sleeps well."

Not tempest tost, not in the fierce affray, not grandly lashed to the mast with his eagle eye scanning the conflict did he meet death—but like a stout ship-of-war battered by the enginery of conflict, scarred, wounded, with a firm hand at the helm, creeping, creeping safely, tremblingly into the peace-calmed haven—rocking, rising, falling, settling to a restful grave—so went the hero, down through the vale of the dying up to the land of the living; and to-day a prosperous nation remembers her earthly saviors, and kneels by their graves with garlands in her hands, and as ye strew the flowers around, forget not the resting place of David Glascoe Farragut.

A GOOD DAUGHTER.—"My daughter keeps my farm accounts, sir; and she is as systematic and particular as ever my son was, who kept them before he left home. I tell you it does girls (and he might have added boys also) good to give them some responsibility, and set them to watching things about the farm and household. They learn, I find, economy by it, and soon discover that their old father is not, necessarily, a crabbed old curmudgeon because he doesn't loosen his purse-string whenever they see something they happen to fancy; for they discover the real reason why the purse should not be opened." So said a progressive farmer, a kind, appreciative and proud father, and a big-hearted man on general principles,

Benjamin Franklin.

Benjamin Franklin was born at Boston, Mass., on the 17th of January, 1706. His father was a native of England, and was a soap-boiler and tallow chandler by trade. At the age of eight years young Franklin was sent to a grammar school in Boston, where he remained two years, studying hard and obtaining the rudiments of an English education. When Benjamin was ten years of age, his father took him into his shop to learn him the trade, but the business proved so distasteful to the boy that at the age of twelve he was apprenticed to his brother James, to learn a printer's trade. This employment proved congenial to him, and he made rapid progress in the printer's art. He had a great zeal for learning, and, figuratively speaking, devoured all the books which he could obtain. In this manner he secured an immense fund of useful information. In 1721, James Franklin began printing the *New England Courant*, the fourth paper started in America. Early in its publication anonymous articles appeared, of so much merit, that they attracted general attention. Benjamin was the author of these, and he determined to persevere in his efforts at literary composition. His care and attention soon made his style noticeable for simplicity and purity. The growing popularity of the paper was due as much to young Franklin's thorough hand-work as to his brain labor. But he so scathingly rebuked hypocrisy and religious knaves, that the publication got into trouble. And James, not caring to assume the responsibility of maintaining the paper in its theories, surrendered its publication to his brother, and it was issued in the name of Benjamin Franklin, but Benjamin did not choose to remain in Boston, as his liberal opinions had brought him into public disfavor; and his brother was neither kind nor agreeable to him. Therefore, in October, 1723, when he was but seventeen years old, he took passage on board a sloop and sailed for New York.

He was unable to procure employment in New York, and so resolved to continue on to Philadelphia. He went to Amboy in a sailing vessel, and from that place walked to the Delaware at Burlington. Embarking in a small boat for Philadelphia, he was obliged to help row; and so, with sorely blistered hands and but a dollar in his pocket, and without a friend, he set foot in the strange city. Still he was possessed of a rich capital—robust health, habits of sobriety, and a fixed determination to succeed. Besides all this, powerful genius stimulated his soul.

He purchased three rolls at a baker's shop to stay his hunger, and with one under each arm, he walked up the street in quest of employment. At that time there were but two printers in Philadelphia. One of these employed the young man, and ere long his excellent habits began to win him friends. Governor William Keith, of Pennsylvania, took a great liking to him, invited him to his house and gave him access to his library.

Although Franklin was so young, the Governor advised him to set up a printing office of his own, promising to assist him if he would go to London and procure an outfit. So Franklin sailed, the Governor promising to send on board with the mail letters to enable him to procure credit in England. The letter-bag, on being opened, showed that Governor Keith had forgotten or neglected to fulfil his agreement. Yet Franklin had embarked and must continue on, and he found himself landed in London in worse plight than when he reached Philadelphia. He lost no time, but immediately sought and found employment as a journeyman printer.

He remained in London two years, when he returned to the States as a clerk to a merchant named Denham. Denham died, and Franklin returned to the office of his old employer in Philadelphia. His genius was such that he could engrave on copper, make wood-cuts, design letters and make printers' ink. After working some time in this office he set up in business for himself, with Mr. Meredith for partner. This partnership did not continue long, and he went on by himself. In spite of care and economy, he got in debt and difficulty, from which he was relieved by his generous friends; and then to his printing business he added a stationary shop. Business soon began to prosper with him. He married an estimable lady, who bore him a son and a daughter.

For literary enjoyment he formed a club of intellectual people. Their studies and commentations went beyond the field of literature into the precincts of

science. This club led him to conceive the idea of founding a public library, to be supported by the subscriptions of its patrons. The noble institution grew into the present Philadelphia Library. In 1732, Franklin began the publication of "Poor Richard's Almanac." Its quaint maxims, dry humor and sterling sound sense brought it great popularity. He issued it regularly for twenty-five years, selling annually over ten thousand copies.

It was Benjamin Franklin who suggested the institution which has since expanded into the University of Pennsylvania.

In the course of a few years he was appointed printer to the General Assembly of Pennsylvania, and in 1736, was elected clerk of that body. In 1737, he was appointed postmaster of Philadelphia. He next organized the first fire company ever established in this country.

During King George's war the savages ravaged the Pennsylvania border, and as the House of Assembly took no action to draw out the militia, Franklin called for volunteers. In a short time ten thousand men offered their services. Franklin accompanied two expeditions, holding for a time command of the volunteers. He was no orator, but his short, pithy sentences vetoed many a bill. His paper advocated freedom of speech and freedom of the press.

"The judgment of a whole people," he said, "if unbiased by faction, and undeluded by tricks of designing men, is infallible."

In 1753, he was appointed Deputy Postmaster-General of the British Colonies. He moved from one post of honor to another, but never lost sight of his scientific studies. He devoted a considerable part of his time to experiments in electricity, of which he published accounts. He conceived the idea that the electric fluid and lightning were identical, and he sought to verify the theory. In 1752, he made a kite of silk, to the upright stick of which he attached an iron point. The string used was of hemp, excepting the part which he held in his hand; that was of silk, and a key was tied where the string of hemp ended.

On the approach of a thunder-storm, he went out into the field and raised his kite. A cloud sailed sluggishly over it, but there were no signs of electricity. The philosopher felt a keen disappointment; but in a moment he saw the loose hempen fibres begin to quiver, and then stand upright. He immediately presented his knuckles to the key, and received a strong spark. The experiment had proved successful, and the truth of his theory was established. He immediately published an account of his discovery, which at once rendered him famous both in America and Europe. A practical use of his discovery soon suggested itself to him, and he invented the lightning rod. He it was who taught his family to catch the lightning in its swift leaps between sky and earth, compelling it to ring bells in warning as it passed on its rapid way.

He became celebrated both in the Old World and in the New. His mental activity was very great. The fireplace stove bearing his name resulted from his experimenting.

Franklin's religious sentiments differed much from the masses of his time. He respected faith that was based upon reason rather than tradition. Escaping from the extremes of fixed decrees and free will, with increasing years and increasing knowledge he learned to trust fully the God who created the universe and himself. He saw revealed in Nature's laws the laws of God. In all his career he was unselfish in his dealings with brother man. Although his scientific studies and investigations showed him the sublimity and massive grandeur of the universe, it taught him respect also for the simplest thing created, as all things have their mission and are amply fitted to fill it.

For many years he remained abroad the companion of learned men. He was one of the first men to detect the purpose of the English aristocracy to destroy the liberties of the colonies. He wrote his countrymen concerning it. He remonstrated with the British Ministers, and warned them of the result of their meditated taxation. The result of the Stamp Act proved as he predicted; then the Ministers turned to him for advice. This placed him in a delicate position. He must stand by his country, yet if he offended Parliament he might injure the Colonial cause. But he spoke calmly, he argued clearly, and brought forward to confront them unpleasant truths.

Fearlessly he set before them the certain results of their attempted oppression. He dauntlessly met the disagreeable experiences arising from the stand which he had taken. He still remained in England although his liberty, if not his life, was threatened.

It was Franklin who interested the French Government in the Colonies; and when the war was over, he had the satisfaction of knowing that no one had contributed more to obtain this successful end than himself.

In March, 1785, at his repeated and urgent request, he had a successor appointed as Minister to France, and he sailed for home. At this time he had grown quite old and infirm, and the many friends which he had made bade him a regretful farewell. Franklin reached Philadelphia, and was joyfully welcomed by his fellow-countrymen.

On the 17th of April, 1790, the statesman and philosopher died at Philadelphia at the advanced age of eighty-four years. He was buried with great public honors. Congress ordered a general mourning for him throughout the Union for a month. Funeral orations were pronounced for him in Paris. The National Assembly ordered its members to wear mourning for three days in commemoration of the event. The Assembly also sent a letter of condolence to the Congress of the United States in regard to their irreparable loss. Such honors as these France never before paid to any foreign citizen.

No wonder that foreign powers should marvel over institutions or governments that would permit a printer, the son of a soap-boiler and tallow chandler, to work his way up with only Nature's patent of nobility, until he should stand pre-eminent among the lords, the nobles and the crowned heads of the world!

Long live America! May God forever bless the land of the free!

VIRTUE is the first title of nobility.

MOLIERE.

Eloquence.

The art of speech, the art of eloquence, is that art which flourishes in free countries. It is an old proverb that every people has its prophet, and every class of people its. Our community runs through a long scale of mental power, from the highest refinement to savage ignorance. There are not only the wants of the intellectual, the learned, the poetic men and women to be met, but also the vast interests of property, public and private. The mining, the manufacturing interests, trade, railroads—all these must have their advocates of each improvement and each interest. Then there are the political questions which agitate millions, and which find or form a class of men, by nature or habit, fit to discuss and deal with them, and makes them intelligible and acceptable leaders. So with education, art, or philanthropy. Eloquence shows the power, the possibilities of men. Here is one of whom we took no note, but on a certain occasion it appears that he has a great virtue, never before suspected; that he can paint what has occurred and what must occur with such clearness to a company as though they saw it done before their eyes. By leading their thought he leads their will, and can make them do gladly what an hour ago they could not believe they would be led to do at all. He makes them glad, or angry, or penitent, at his pleasure; of course makes friends, and fills desponding men with hope and joy. After Sheridan's speech in the trial of Warren Hastings, Mr. Pitt, the Prime Minister, moved an adjournment, that the house might recover from the overpowering effect of Sheridan's oratory—the delight that sudden eloquence gives at the moment is so rich. An old Greek orator once said he had a way to cure the distempers of men's minds by words. The orator is that physician, whether he speak from the capitol or on a cart; he is the benefactor that lifts men above themselves and creates a higher longing than he satisfies. The orator, in short, is he whom every man is seeking when he goes into the courts, into the conventions, into the popular assemblies—though often it has been with disappointment, yet never giving over the hope; he finds him, perhaps, in the Senate, when the forest has cast out some wild, heavy-browed bantling, to show the same energy in the court or forum which he had learned in driving the cattle to the hills or in scrambling through thickets in the Winter frost, or through the swamp in search of his game. In the nobility of his brow, in the majesty of his mien, nature has marked her son; and in

his artificial and perhaps unworthy place in company she reminds you of the lessons taught him in early days by the torrent, in the gloom of the pine woods where he wandered, the companion of the wild birds or the hunter of the deer. Or you may find him in some lowly bethel by the sea-side, where the hard-featured, scarred, and wrinkled Methodist becomes the poet of the sailor and fisherman, while he pours out the abundant streams of his thought through a language all glittering and fiery with imagination. A man who never knew a looking-glass or a critic; a man whom college course or patronage never made, whom praise cannot spoil; a man who carries his audience by infusing his soul into them, who speaks by the right of being the person in the assembly who has the most to say, and so makes the other speakers appear little and cowardly before his face. For a time he throws all others into the shade, and every listener gladly consents to be nothing in his presence, surprised and carried away in the new flood of his eloquence. He instructs or he is instructed, for I am thinking of a man who showed well the power of man over men; that man is a mover to the extent of his using and having this power, and in contrast to the efficiency he suggests our actual life and society appears a sleeping-room. Who can wonder at the influence of eloquence on young and ardent minds? Uncommon boys follow uncommon men, and I think every one of us can remember when our first experience made us for a time the admirer or the worshiper of the first master of this art whom we happened to hear in the court-house or in the caucus.

RALPH WALDO EMERSON.

Lord Brougham's Residence.

I conscientiously declare that as far as my rather extended knowledge of Europe goes, there does not exist within its limits so arid, so monotonous, so ugly, and so every way unattractive a region as Provence. I entered it from Italy by Nice; passing by the ugly, tasteless, treeless, dust-enveloped little roadside suburban villa with its vulgar-looking gilt-headed iron rails in front, for which Lord Brougham deserts the lovely banks of the Lowther and the magnificent groves and truly noble hills of Brougham. The bay of Cannes is certainly pretty, and its gleaming waves and wooded banks form the distant view from the house; but the immediate foreground and neighboring land have about as much charm as the garden which intervenes between the new road and one of the houses in that not highly picturesque locality. Beyond the little town of Cannes the road crosses a range of partially wooded hills called Les Maurer, from having been infested by Saracen brigands in the good old times of poetry and romance, broken heads and cut-throats. The porphyry rocks of which they are composed take fantastic and rather picturesque shapes; which, added to the mingled foliage of the cork and stone pine, together with here and there a distant peep of the sunlit Mediterranean, form a landscape of some beauty. But when the traveler has rattled down their western slope and passed through the dirty little town of Frejus, he has nothing before him but dull, parched plains and barren stony hills. In the midst of a region of low, calcareous undulations producing corn, wine, oil and dust in astonishing quantities, stands Aix, the ancient Capital of Provence, the city of good Roi Rene, the home by predilection of the Troubadours. The special headquarters of poetry, love, gallantry, and festivity. I remained two days in Aix for King Rene's sake. It seemed hard to believe that all that gay and gallant time, with its parliament of love, its jousts and tournaments, its jongleur and troubadours, should have passed and left no trace, no visible impress; or some memorial, if not strictly visible, at least appreciable to the eye of histrionic faith. But no! nothing! A more utterly uninteresting provincial town it is impossible to conceive. In vain I poked among its obscure lanes and filthy courts. I found nothing to reward my enthusiasm. The few remaining ruins of the courts of Provence were removed some years ago to make place for a bran new and tasteless Hotel-de-Ville.

J. J. W.

THE gibbet is a species of flattery to the human race. Three or four persons are hung from time to time for the sake of making the rest believe that they are virtuous.

SANIAL-DUBAY.

John Charles Fremont.

It has always appeared to us that the services and daring enterprise of this explorer has never been fully appreciated by the world, and in connection with him there comes to mind these lines:

"Lives of great men all remind us
That the nobly striving soul,
Scarce receives a tithe of merits
'Till 'tis past life's trying goal."

John Charles Fremont was born on the 21st of January, 1813. The usual residence of his family was in the city of Charleston, South Carolina. His father, who bore the same name, was deeply interested in studying the character of the North American Indians, and spent the last years of his life in visiting many of their tribes. On these excursions he took his family with him, and moved slowly, stopping leisurely at the larger towns and points of chief interest. During one of these journeys the subject of this memoir was born in the city of Savannah. The father, following his favorite pursuit, subsequently visited with his family, and remained for greater or less periods of time, in various parts of Georgia, Tennessee, the Carolinas and Virginia. The mother, celebrated for her beauty and worth, was Ann Beverly Whiting, a native of Gloucester County, Virginia. Her family was connected with many distinguished names, including that of Washington, to whom she was nearly related.

The father died in 1818, leaving a widow and three children—two sons and a daughter. Colonel Fremont is the sole survivor of his family, excepting the daughter of his brother, who, since she was nine years of age, has been a member of his family.

After the death of her husband, Mrs. Fremont remained for some time in Virginia; and at Dinwiddie Court House John Charles received the rudimentary lessons of his education. She moved back ere long to Charleston and continued the educating of her children; and although left in limited circumstances she was so fortunate as to meet with the sympathy and assistance that her worthiness deserved.

When John Charles was thirteen years of age, a lawyer of Charleston—John W. Mitchell, Esq.—no doubt perceiving more than usual abilities in the boy, took him into his office intending to make a lawyer of him; but some subsequent revelation of the boy's character caused him to place young Fremont with Dr. Robertson, a learned instructor, of Charleston. Dr. Robertson published an edition of Xenophon's *Anabasis* in 1850, in which he makes this mention of Fremont:

"For encouragement I will mention a remarkable instance of patience, diligence and indomitable perseverance. In 1827 as I returned from Scotland to my classes in Charleston, a very respectable lawyer came to my school—I think it was in the month of October—bringing a slender, well-formed and handsome youth, somewhere between the ages of fourteen and sixteen. The keen eye and noble forehead of the boy bespoke him a genius. The lawyer stated that the youth had been about three weeks learning the Latin rudiments, and he had resolved to place him under my care for the purpose of learning Greek, Latin and mathematics sufficiently to qualify him to enter Charleston College. Gladly I received him, as I immediately perceived that he was no common boy, for the dark eye and beaming face gave promise of a progressive future. I put him into the highest class, which was just beginning to read 'Caesar's Commentaries;' and, although at first inferior, his prodigious memory and enthusiasm of application soon carried him up to and past the best scholars. Beginning Greek he also excelled the others, and in the space of one short year, at odd hours, he had read four books of *Cæsar*, *Cornelius Nepos*, *Sallust*, six books of *Virgil*, nearly all of *Horace*, and two books of *Livy*. He had read all *Græca Minora*, about the half of the first volume of *Græca Majora*, and four books of *Homer's Iliad*. And whatever he read he retained. He seemed to learn so readily and rapidly that I was delighted and astonished at his progress.

"Although it was hinted that he was destined for the church, there was the fearlessness, the powerful genius, the instinctive admiration for bold, heroic and warlike deeds that could hardly, and not readily, be subdued in consonance with the ministering of the Gospel to the

world. But he had no appearance of vice; on the contrary, he was a model of virtue and modesty. His extraordinary progress, his noble manhood, captivated my love. It was plain to see that some day he would arrive to an eminence. He developed poetical talents of a superior order; and in mathematics he made such fine progress that at the end of one year he triumphantly entered the Junior Class of Charleston College, where the average young man toils at his studies four years to even enter the Sophomore Class.

"In 1828 I left Charleston, where he for some time taught mathematics, at the same time having charge of an evening school, and every one familiar with this occupation will sympathize with him in his labors to support a widowed mother and her family."

What energy, what endurance were developed in this man? Dauntless and daring in his whole career, who appreciates his merits fully? Alas, but few. While toiling for his mother, an incident of no mean importance brought him into favorable notice and secured him employment from those whose patronage would pay.

There was a lawsuit concerning a certain rice field near Charleston, and being at the height of the sickly season, the surveying and locating of the property involved so much danger that it seemed quite impossible to get any one to undertake it. Fremont, however, carried the work through so boldly and successfully that he won the admiration of all parties concerned. Soon after this he was engaged in the survey of a railroad leading from Charleston to Hamburg. Next we find him on board the sloop-of-war *Natchez* as mathematical instructor of the midshipmen during her cruise to the Brazilian coast. Then a board of examiners commissioned him as professor of mathematics in the navy, and assigned him to the frigate *Independence*, where was soon conferred upon him the degrees of Bachelor and Master of Arts. Then under the president's call for civil engineers of great skill to survey plans and estimate routes for roads and canals of national importance in a commercial or military point of view, Fremont received an appointment in this branch of public service, where, eventually, wide renown was to await him. During President Jackson's administration, associated with Captain Williams, an eminent topographical engineer, he commenced on the mountainous routes of the Carolinas and Tennessee; and afterwards they were together in surveying the Cherokee country, and he assisted in preparing the military map resulting from that expedition.

Under Mr. Van Buren's act passed and approved in 1833, Fremont obtained a lieutenant's commission in the topographical engineers, ordered to explore the vast region north of the Missouri and west of the Mississippi. Mr. Nicholet, a distinguished astronomer, was appointed to join this expedition. He wished a companion, young, energetic and courageous, with scientific knowledge. Fremont was named as the suitable person, and he promptly accepted the situation when offered him. The years 1838 and 1839 were spent in this way and the whole country was explored up to the British line. Fremont assisted zealously in this work and also in making up the map of the region. In these surveys under Mr. Nicholet, there were seventy thousand meteorological observations, and the topography was minutely determined by proper calculations at innumerable points. The map thus constructed has been the source from which all subsequent ones relating to that region have been derived.

In 1841, Lieutenant Fremont commanded a party to survey the Des Moines River; and in October of that year he was married in the City of Washington to Jessie, daughter of Hon. Thomas H. Benton, Senator in Congress from Missouri. To all insinuations of wealthy and influential friends that Jessie might have secured a higher position than this offered by Lieutenant Fremont she turned a deaf ear. Her woman's heart preferred Fremont to position, and woman's wisdom and love then and there made a happy choice. Ere long, awake or awakening to the genius of his son-in-law, Hon. T. H. Benton placed Fremont in his heart from which death had borne his own sons, and he was proud to acknowledge the wise choice of his daughter. We will now briefly glance at Fremont's expeditions, their object and success.

In 1842 his first expedition started out. His object was to examine the country between the Missouri River

and the Rocky Mountains, along the line of the Kansas and the Great Platte or Nebraska rivers.

The incidents and adventures connected with this expedition are as interesting and exciting as a bewitching fiction, and which we regret cannot be narrated in an article like this. We cannot forego copying the closing paragraph in Fremont's journal concerning this journey.

"Four of the best buffalo skins were sewed together with sinew and stretched over a basket or willow frame. The seams were then covered with ashes and tallow, and the boat was left exposed to the action of the sun for the greater part of one day, which was sufficient to dry and contract the skin, and make the whole work solid and strong. It was eight feet long and five broad, and drew with four men about four inches of water. We found, however, that we could not navigate the river in this skin boat, so we went forward on foot, and by walking steadily, a little before dark we overtook the rest of our people at their evening camp, having gone a distance of twenty-two miles that day. The next morning we crossed the Platte and continued our course along a plainly defined pathway. On the morning of October 1st, at break of day, we heard the cowbells on the Missouri farms."

St. Louis was reached on the 17th, and on the 23d Lieutenant Fremont reported himself to the chief of the corps at the City of Washington.

His second expedition took the route of Kansas, Salt Lake, Columbia River, Sierra Nevadas and California. Only a full and lengthened detail of the toilsome way, the dangers from savage and wily red men, the pressing through inaccessible mountain heights, the night watches, the cold, the driving storms, the starvation and death that was experienced can give one a realizing sense of the indomitable fortitude and amazing moral strength of this hero of our day.

In 1845, the President, with the consent and advice of the Senate, conferred upon Lieutenant Fremont a brevet commission of captain in the corps of topographical engineers.

In the fall of that year he started on his third expedition. This was under the authority of Government. His route this time embraced Arkansas, the Great Basin, Hawks' Peak and the Sierras, Klamath Lake, etc.

Unexpected and political entanglements wound around this expedition; but his health was not broken nor his enterprising spirit stifled. His zealous and adventurous nature was not one to be crushed by opposition nor adversity. *Onward* was his watchword; *success* the goal he believed in.

His fourth expedition was carried through with great suffering to himself and his companions. He mapped out his route—to ascend the Del Norte to its head, descend the Colorado and so across the Wahsatch mountains, coming into the settled parts of California near Monterey, Mexico.

He reached his destination after enduring untold hardships, and eventually secured the famous Mariposa claim which was destined to be a fortune to him.

Throwing out all the prejudice of politics, every careful reader of John Charles Fremont's life must find a something in the heart to do him homage, so few are the people who will voluntarily sign away ease and the luxuries of home, and repeatedly subject themselves to privation for the benefit of a future generation.

Longfellow's Residence.

Few private houses in the United States are so well known as the residence of Henry Wadsworth Longfellow, at Cambridge, Mass., so often has it been described by affectionate antiquarians and enthusiastic pilgrims. It is not only the home of our most celebrated poet, it also surpasses in historic interest any building in New England, with the sole exception of Faneuil Hall. Its age, as compared with that of other Cambridge houses, is not great. It was built in 1759, by Colonel John Vassall, a firm loyalist, who fled to England in 1775, his property in Cambridge and Boston having been confiscated. Its next occupant was Colonel John Glover, a bold little Marblehead soldier, who quartered some of his troops in the spacious structure. When Washington rode into Cambridge, on Sunday, June 2, 1775, he was greatly pleased with the appearance of the house, and, having had it cleaned, he established himself therein during the same month. Martha Washington arrived at

the house in December, and Washington remained in it until April of the following year. The south-east room on the first floor Washington took for his study, in which the councils of war were all held during the stay of the Commander-in-Chief in Cambridge. He slept just overhead, always retiring at 9 o'clock. The spacious room behind the study, which Longfellow now uses for his library, was occupied by Washington's military family, as a rule a pretty large one. A General's "military family," in English parlance, comprised his whole staff. Washington was not averse to a certain amount of official splendor, and was luckily rich enough to carry out his whim in the matter of making his assistants a part of his ordinary household. Trumbull, the artist, complained, rather sarcastically that he, for one, could not keep his head up in the magnificent society of the house. "I now found myself," he averred, "in the family of one of the most distinguished men of the age, surrounded at his table by the principal officers of the Army, and in constant intercourse with them. It was further my duty to receive company and do the honors of the house to many of the first people of the country." But Washington was thrifty and frugal personally; and his generous maintenance at his own cost of a sort of court was of great service to the colonial cause. The owners of the house after the Revolution were Nathaniel Tracy, (whom Washington visited for an hour in 1789,) Thomas Russell, and Dr. Andrew Craigie. Talleyrand and Lafayette slept in it, and in 1833 Jared Sparks commenced to keep house within its historic rooms. Everett and Worcester, the lexicographer, also occupied it for a time, and Mr. Longfellow took up his abode in it in 1837. At first he merely rented a room, establishing himself in Washington's south-east bed-chamber. Here he wrote "Hyperion" and "Voices of the Night." In the dwelling, in one room and another, almost all his books, save the two which date from his Bowdoin professorship, have been produced. Longfellow had not long been an occupant of the house before he bought it. Its timbers are perfectly sound. The lawn in front is neatly kept, and across the street there stretches a green meadow as far as the banks of the Charles, bought by the poet to preserve his view. Mr. Longfellow himself, as he draws near seventy, is a fine picture of beautiful manhood. It has been remarked by his friends that his health has much improved since he delivered his poem, "Morturi Salutamus," at the fiftieth anniversary of his graduation. And all Cambridge, down to coal-heavers and hod-carriers, reveres him for his benignity, and remembers him not only as a poet but as a kind and gentle man.

A Great Engineer.

George Stephenson is emphatically the engineer to whose intelligence and perseverance we owe the introduction of railroads into England, and consequently into the United States. He was born at Wylam, near Newcastle-on-Tyne, June 9, 1781. His parents were in the lowest ranks in life, but were industrious, respectable and amiable.

When he was an infant, his father noticed his fondness for every piece of machinery, and took delight in amusing him with it.

The first employment of George was to drive the crows from a wheat-field, his wages being twopence a day. He was now eight years old, and employed the intervals of this occupation in making whistles out of reeds, and engines out of clay. He was nineteen years old before he learned to read, and felt very proud when he could write his own name.

In 1801 he married Fanny Henderson, a young servant girl in a neighbor's farm house, and in 1803 his only son, Robert, was born—one of the few instances where a son inherits the peculiar tastes of his father. This son, who is a little less distinguished than himself, he educated by mending his neighbors' clocks and watches at night after his daily labor was done.

On the 27th of September, 1825, the Stockton and Darlington Railway was opened for traffic, and George Stephenson drove the first engine. The train consisted of six wagons, laden with corn and flour, then the passengers' coach, with directors and friends, followed by twenty-seven wagons—in all, a train of thirty-eight carriages.

He died on the 12th of August, 1848, at the age of sixty-seven.

Elihu Burrett, the Learned Blacksmith.

"God is no respecter of persons." All good gifts are not bestowed on the wealthy, the high-born, nor the proud. Nature does not lock up her store-house from the poor and the lowly. From her, to the patient, delving soul, comes the command, "Ask and ye shall receive; seek and ye shall find; knock and it shall be opened unto you."

Come with us, dear reader, to the pleasant town of New Britain, Connecticut. This state lies the most south-westerly of the New England states. The climate is healthy and the soil fertile, and among the hills and valleys lies New Britain; a town not remarkable above other towns, perhaps, and not especially noteworthy, only as it was the birth-place of a remarkable boy. Pass that nice house to the right, pause not at the elegant edifice on the left, for I want to take you to the home of a shoemaker, and into his family of ten children. Here is the youngest boy—the youngest child. Note his full, wide brow, his keen, deep-set eye and thoughtful face. Barefooted, and wearing a dilapidated skull cap with boyhood's careless air—who should guess the history lying down his future years?

The few months' district schooling which it was his privilege to have before his father apprenticed him to the village blacksmith, was like opening a portal, and allowing an eager eye to catch a glimpse of untold beauties within. Hungering and thirsting after knowledge, the few books which the boy could procure from the village library he read and re-read, retaining within his memory the most valuable portion of their contents. An older brother, who had acquired sufficient education to become a school teacher, was the boy's tutor for months after his apprenticeship was ended. During this time of hard and persistent study he gained considerable insight into mathematics, Latin and French.

Now, how many boys would have said: "Well it isn't any use to try to do anything, or to be anybody, when I have got to go back to the smut and griminess of the forge." How many would have replied, saying: "It is discouraging, disgraceful for anybody with the natural gifts and abilities which I possess to come to this low, menial toil for bread." Not so said this young hero. Instead, so gratified was he with the progress which he had made in the few months' study that he resolved that no obstacle should beset his path to success, but that he would surmount or remove it. Neither did he feel that honest labor degraded his intellect; instead he felt that he exalted menial employment. He did not helplessly yield to his hard circumstances, murmuring that if the world had lost anything because his poverty hemmed him in, it might thank itself for not looking after its geniuses. Morning, noon and night he set within the store-house of his mind some useful knowledge. He had an overruling love for the languages. From time to time he worked away upon the Spanish, Greek, Hebrew, Syriac, Danish and Bohemian tongues. He laid out some lesson for the day and beat it into his memory with blow upon blow on his forge. Surely, never was a more successful "anvil chorus" rung. If the reader catches a glimpse of the invincible young man's diary at this time, he will smile, besides having a feeling of veneration spring up in his soul for such indomitable perseverance.

Monday, June, etc.—Headache; studied forty pages of Cuvier's Theory of the Earth; read sixty-four pages of French, and beat my forge eleven hours of the day.

Tuesday.—Sixty-five lines Hebrew, thirty pages French, ten pages Theory of the Earth, eight lines of Syriac, ten of Danish, ten of Bohemian, nine of Polish; learned names of fifteen stars; worked ten hours at the forge.

Wednesday.—Twenty-five lines of Hebrew, five pages of Astronomy, eleven hours forging.

Thursday.—Fifty-five lines of Hebrew, ditto Syriac, eleven hours forging.

Friday.—Not well; twelve hours forging.

Saturday.—Not well; fifty pages Natural Philosophy, ten hours at the anvil.

Sunday.—Lesson for Bible class.

There, reader, you have a record of this wonderful young scholar for one week, it being, doubtless, a sample of successive months and years.

The extraordinary talent of this young man penetrated abroad. Governor Everett sent him an invitation to visit Boston. When he arrived there, men interested in his behalf made him kind offers of assistance: among

others, to send him to Harvard College; but with a native and laudable independence he declined, and came back to the forge, having, seemingly, become attached to the inspirational "ring, ring," of his anvil. But when he came back this time he was not the same young blacksmith that went away to visit Boston. Feeling himself somewhat appreciated by the world, had been like draughts of new wine. From all sides divine inspiration seemed pouring in upon him. Not vain or proud of his attainments, which ever way that he turned wider fields of knowledge appeared opening up before his enraptured vision. His was one of those rare, divinely blessed natures that could never graduate—or call his studies finished—could never accept a diploma, and the certificate that he was no longer a scholar. The more knowledge that he had obtained the more he saw that there was to obtain; leading him to the full and fixed belief of eternal progression.

After his return from his visit to Boston he translated a series of papers from the Icelandic, Samaritan, Arabic, and Hebrew languages, which were published in the American Eclectic Review. And during the winter of that year he delivered no less than sixty-eight lectures. In the spring he commenced the study of the Ethiopic, Persian and Turkish languages.

While this wonder child of Nature pondered over the holy inspirations of his Hebrew Bible, he was led to look upon the masses of mankind as stars, so to speak, only varying in magnitude one above the other. He read that God made of *one flesh* all the children of the earth. This assertion of sacred writ bore heavily upon his mind. Could he accept this as God's word? In his most solemn meditations he was forced to believe that not only had God said but that God *meant* it. Then the crimes of slavery and war stood up hydra-headed and terrible before him. He resolved to use his influence for the benefit of the down-trodden and oppressed. Like all great, benevolent minds into which God pours the divine stimulus of His shielding, enlightening love, he wished every creature of the Divine Creator to enjoy untrammelled the full benefits of existence. The degradation of slavery, to his mind, was transgressing the law, as of *one flesh* God created all the nations of the earth.

"Peace," he cried, continually, "peace and the rights of men are engraven on my standard." The few hundreds of dollars which he had accumulated he devoted to the publishing of a paper for the upholding of peace, progress and the liberty of all mankind.

When in his thirty-fourth year, or thereabouts, he visited England, and keenly observant and sensitive to the interests of nations and people, he resolved to devote his whole energies to advocating the common brotherhood of all kinds of and colors of men. Most zealously he labored to establish international courts of arbitration, where the disputes and difficulties that arise among the different governments may be referred for settlement without recourse to the sword. How the friends of humanity should rejoice over a man like this—not a renowned warrior, not a great diplomatist, not an able politician, but an advocate of *equal rights and peace*.

A British periodical speaks of this remarkable young man as the originator and able advocate of the cheap international postage law; which matter he and Rowland Hill continued to agitate until success crowned their efforts, and the whole civilized world accords them grateful thanks. America to-day is proud of her self-made sons, whose patent of nobility is not granted them from entailed estates nor lordly pedigree, but upon whose foreheads and in whose palms is set the seal of greatness, unto whom God has given the talents that have been improved upon until indeed their possessors are fitted to rule over great dominions.

High up on the records of laudable fame engrave the name, ELIHU BURRETT, the Learned Blacksmith. And down deep into brain and heart, brothers and sisters, instill this truth—what HAS been done may be done again. The road to success is a highway open to all; and if we set our whole mind upon attaining a great good, possibly we may fail; but there is more honor in failure while striving to attain a glorious success than in weakly yielding to base influences that degrade the faculties which God has bestowed upon us.

Faults of the head are punished in this world, those of the heart in another; but as most of our vices are compound, so also is their punishment. COLTON.

THE NIGHTINGALE.

The name of this bird is derived from the Saxon,

This charming bird may be traced from England, through Germany, Poland, France, Italy, and Palestine.

It is the largest of all the warblers, being about



"ON MOONLIT BUSHES, WHOSE DEWY LEAFLETS ARE BUT HALF DISCLOSED,
YOU MAY PERCHANCE BEHOLD THEM ON THE TWIGS."

night, and galan, to sing; or, the night-singer. Antony calls Cleopatra his "nightingale," and says:—

"The nightingale, if she could sing by day,
When every goose is cackling, would be thought
No better a musician than the wren."

seven inches in length, and between ten and eleven in the extent of its wings. The upper parts are of a deep yellowish-brown, inclining to reddish brown; the quills and greater coverts are dusky brown, with reddish-brown margin; the tail deep reddish-brown,

and very slightly forked: the sides of the neck, ear coverts, breast and flanks, pale ash-gray, passing into grayish-white on the throat and lower parts; an obscure dusky streak going from the gape down the side of the neck, and into the gray of the breast. The colors of the female are like those of the male. The bill is wood-brown, with the basal end of the lower mandible pale, yellowish-brown; the tarsi, which are long, and the toes, are of the same color.

It is a migratory bird, passing the winter in northern Africa, but in the summer found over the greater part of Europe, even to Sweden and temperate Russia. It is said not to be found in Great Britain north of the Tweed, and is plentiful in some parts of England and is never heard in others. The writer has frequently listened to the song of the nightingale in different places in the neighborhood of London, and in its finest voice in the Isle of Wight, near St. Lawrence. It is found in Sussex, Dorsetshire, Somersetshire, and in the east part of Devonshire, but not in Cornwall. It frequents a greater part of Yorkshire; but is unknown in Lancashire, though it has been heard in Carlisle.

Sir John Sinclair endeavored to introduce this delightful songster into the groves of Scotland, exchanging the eggs of robins for those of nightingales. The young birds were hatched and brought up by their foster parents; they migrated in September, their usual time, but never returned to the place of their birth. A similar experiment was made at Swansea with the same result. Enos is its Welsh name, but Wales is not known to possess it. Leyden asks:

"Sweet bird! how long shall Teviot's maids deplore,
Thy song unheard along the Woodland shore?"

And the same lament may arise from the daughters of Erin. The nightingale begins to appear in the middle of France about the first week in April, and in England a week or ten days later. The males first venture across the channel, disperse themselves over the country, resort to thick hedges, copses and plantations, pour forth their songs at eve, and await the arrival of their mates, which is sometimes delayed beyond a few days by cold and uncongenial weather. Most artfully and carefully concealed are the nests they build. Composed externally of dried leaves and grass, or of the skeleton leaves which strew the banks and thick bottoms of hedges, the little dwelling is lined with hair and soft fibers. Calculated to deceive the eye, it is placed low down in a thick bush, or luxurious hedge, among intertangled stems. The eggs, of a greenish-brown, are five in number.

Nightingales are very shy, remaining concealed as much as possible among the foliage. Although their song is heard at intervals during the day, it excites the greatest admiration on quiet evenings an hour or two after sunset. When the moon is nearly full, and the weather is serene and still, it may be heard till midnight, and is then exceedingly pleasing.

Virgil and other classical poets, from the melancholy character of part of its song, call it *miserabile carmen*; though it would seem an insult to modern poets to hint that the song of the nightingale has been ever estimated in comparison with that of other native or foreign birds, some have gone to the extreme of regarding it as inferior to that of many thrushes; its natural song is certainly very sweet, but not more so, in the opinion of Audubon, than that of the black-capped warbler, and but little, if at all, superior to that of the woodlark; the song of the skylark is far more spirited, more prolonged, and of much greater compass, though less sweet; the notes of the American mocking-bird are very much sweeter, more varied, and of greater compass, power, and duration; and many birds, which naturally have

no song, like the bullfinch, can be taught to sing in perfect time and tune, which the nightingale cannot. But take it as a whole, it must be confessed to be superior at least to that of all British songsters.

Isaac Walton observes of this noted song-bird: "He that at midnight, when the very laborers sleep securely, should hear, as I have heard, the clear air, the sweet descants, the natural rising and falling, the doubling and redoubling of her voice, might well be lifted above the earth, and say, Lord! what music hast thou provided for thy saints in heaven, when thou affordest bad men such music on earth."

The males only sing, and, like other migratory birds, never during the winter in cages, and not until after the spring, moult. They are short-lived in captivity from being kept too warm and from improper food; this should be chiefly insects, or small bits of meat and fruits.

Dr. Latham states that, "as is usual with the migrating warblers, the male remains on the spot to which it first resorts, attracting the female by its song; and if by accident the female is killed, the male, which had become silent, resumes his song, and will continue to sing late in the summer, till he finds another mate, in which case they will breed at a later season."

"Can there be a man," says Belon, an old French writer, "so deprived of judgment as not to take admiration in hearing such melody come out of the throat of a little bird?" Crshaw has the same idea in his "Music Duel," where he describes the nightingale as trailing

"Through the sleek passage of her open throat,
A clear, unrinkled song: then doth she point it
By short diminutions,
That from so small a channel should be raised
The torrent of a voice, whose melody
Could melt into such sweet variety."

Hardis says:—

"Now, I steal along a woody lane,
To hear thy song so various, gentle bird,
Sweet queen of night, transporting Pachelbel.
I name thee not to give my feeble line
A grace else wanted, for I love thy song,
And often have I stood to hear it sung,
When the clear moon, with Cyprian smile
Emerging from an eastern cloud, has shot
A look of pure benevolence and joy
Into the heart of night. Yes, I have stood
And marked thy varied note, and frequent pause,
Thy brisk and melancholy mood, with soul
Sincerely pleased. And oh! methought no note
Can equal thine, sweet bird, of all that sing
How easily the chief! yet have I heard
What pleases me still more—the human voice
In serious sweetness flowing from the heart
Of unaffected woman. I could hark
Till the round world dissolved to the pure strain
Love teaches, gentle modesty inspires."

"The nightingale," it has been truly said, "passes from grave to gay; from a simple song to a warble the most varied; and from the softest trillings and swells to languishing and lamentable sighs, which he as quickly abandons to return to his natural sprightliness."

Milton has said:—

"Sweet bird! that shunn'st the noise of folly,
Most musical, most melancholy;
Thee, charitress, of the woods among
I woo, to hear thy evening song."

To this Coleridge replies:—

"And, hark! the nightingale begins its song,
'Most musical, most melancholy' bird.
A melancholy bird? oh! idle thought!
In nature there is nothing melancholy.
—'Tis the merry nightingale
That crowds, and hurries, and precipitates
With fast, thick warble, his delicious notes,
As he were fearful that an April night
Would be too short for him to utter forth
His love-chant, and disburden his full soul
Of all its music!"

"And I know a grove
Of large extent, hard by a castle high,
Which the great lord inhabits not; and so
This grove is wild with tangling underwood.

And the trim walks are broken up, and grass,
Thin grass and kingcups, grow within the paths;
But never, elsewhere, in one place I knew
So many nightingales; and far and near,
In wood and thicket, over the wide grove,
They answer and provoke each other's song,
With skirmishes and capricious passagings,
And murmurs musical and swift, jug, jug,
And one low piping sound, more sweet than all—
Stirring the air with such an harmony,
That should you close your eyes, you might almost
Forget it was not day! On moonlit bushes,
Whose dewy leaflets are but half disclosed,
You may, perchance, behold them on the twigs,
Their bright, bright eyes, their eyes both bright
and full,
Glistening, while many a glow-worm in the shade
Lights up her love-torch.

"And off a moment's space,
What time the moon was lost behind a cloud,
Hath heard a pause of silence; till the moon
Emerging, hath awakened earth and sky
With one sensation, and the wakeful birds
Have all burst forth in choral minstrelsy,
As if some sudden gale had swept at once
A hundred airy harps!"

No wonder that the rustic English poet, Clare, remarks:—

"I've often tried, when tending sheep or cow,
With bits of grass and peels of water straw,
To whistle like the birds. The thrush would start
To hear her song of praise, and fly away;
The blackbird never cared, but sang again;
The nightingale's pure song, I could not try.
And when the thrush would mock her song, she
paused,
And sang another song no bird could do.
She sang when all were done, and beat them all."

According to Buckstein, "The first good quality of a nightingale is, undoubtedly, its fine voice." He then states that this bird expresses his different emotions by suitable ones, and particular intonations. The most unmeaning cry when he is alone, appears to be the simple whistle, "fitt," but if the syllable "crr" be added, it is then the call of the male to the female. The sign of displeasure, or fear, is "fitt," repeated rapidly and loudly before adding the terminating "crr," while that of satisfaction, pleasure and complacency, is a deep "tack," which may be imitated by smacking the tongue. In anger, jealousy, rivalry, or any extraordinary event, he utters hoarse, disagreeable sounds, somewhat like a jay, or a cat. Lastly, in the season of pairing, during their playful gambols, a gentle, subdued warbling is all that is heard. But when their young are hatched, their song ceases.

"Nature," he continues, "has granted these tones to both sexes; but the male is endowed with so very striking a musical talent, that, in this respect he surpasses all birds, and has acquired the name of the king of songsters."

"Twenty-four different strains or couplets may be reckoned in the song of a fine nightingale, without including its delicate little variations; for among these, as among other musicians, there are some great performers, and many middling ones. The song is so articulate that it may very well be written."

"The nightingales of all countries, the South as well as the North, appear to sing in the same manner; but there is, as has been observed, so great a difference, that we cannot help acknowledging that one has a great superiority over another. On points of beauty, however, where the senses are the judges, each has his own peculiar taste. If one nightingale has the talent of dwelling agreeably on his notes, another utters his with peculiar brilliancy; a third lengthens out his strain in a peculiar manner; and a fourth excels in the silveriness of his voice. All four may excel in their style, and each will find his admirer; and it is very difficult to decide which merits the palm of victory. There are, however, individuals so very superior, as to unite all the beauties of power and melody; these are generally birds which, having been hatched with the necessary qualifications, in a district well supplied with nightingales, appropriate whatever is most striking in the song of each. As the return of the males in spring always precedes that of the females by seven or eight days, they sing before and after midnight, in order to attract their companions on their journey during the fine nights. If their aims succeed, they keep silence during the night, and salute the dawn with their first accents, which are continued through the day. Some persist, in their season, in singing before and after midnight, whence they have obtained the name of nocturnal nightingales. After repeated experiments for many successive years, I think I am authorized in affirming that the nocturnal and diurnal nightingales form distinct varieties which propagate regularly; for if a young bird be taken out of the nest of a night singer, he will in turn sing at the same hours as his father, not the first year, but certainly in the following; while on the other hand, the young of a day nightingale, will never sing in the night, even when it is surrounded by nocturnal nightingales. I have also remarked that the night-singers prefer mountainous countries, and even mountains themselves, whilst the others prefer plains, valleys, and the neighborhood of water. I will also affirm that all the night singers found in the plains, have strayed from the mountains."

The nightingale is capable of forming strong attachments to individuals. When the bird has become acquainted with the person who takes care of it, it distinguishes his step before it comes within sight, welcomes him with a cry of joy, and during the moulting season, makes efforts, though vainly, to sing, and shows its emotions in the gaiety of his movements and the expression of its looks, when it cannot give them a vocal utterance. Should it lose its benefactor, it has been known to pine to death; and should it survive, it is long before it becomes accustomed to another. Its attachments are long, because they are not hasty, which is the case with all mild and timid dispositions.

A white nightingale, valued at six thousand sesterces, was once presented by the Empress Agrippina, to one of her friends. Pliny tells that some nightingales belonging to the two sons of the Emperor Claudius, spoke Greek and Latin, and made new phrases every day to divert their masters. Gesner describes two others, belonging to an innkeeper at Hatisbon, which, more wonderful still, conversed all night on the politics of Europe; but he adds, they did no more—enough certainly—than repeat at night the conversation they had heard during the day.

Jason and the Argonauts.

One of the most celebrated enterprises of the heroic ages, one which forms a memorable epoch in the Grecian history, a sort of separation point between the fabulous and the authentic, was the Argonautic expedition. This was a voyage from Greece to Colchis in order to obtain the golden fleece, conducted by Jason, the son of Æson, king of Thessaly. The undertaking was imposed upon him by his uncle Pelias. He invited the most illustrious heroes of Greece to unite in the expedition, and among those who joined him were *Hercules*, *Castor and Pollux*, *Peleus*, *Prithous*, and *Theseus*. The vessel built for the purpose was named *Argo*, which after various adverse events arrived at Æa, the capital of Colchis. Ætius was then king of Colchis, and promised to Jason, the golden fleece only on certain most difficult conditions.

Although Jason fulfilled these conditions, yet Ætius was unwilling to permit him to take the desired booty, and sought to slay Jason and his companions. This purpose was betrayed by Medea, the king's daughter, by whose assistance and magical art, Jason slew the dragon that guarded the fleece, and seized the treasure. He immediately fled, accompanied by Medea, but was pursued by her father. Medea put to death her brother Absyrtus, cut his corpse into pieces, and strewed them in the way in order to stop her father's pursuit. Jason was afterwards faithful to her, and married Creusa, or as others name her, Glauce, a daughter of Creon, king of Corinth. Medea took vengeance by causing the death of Creusa, and also of her children she had herself born to Jason. After death, Jason received the worship bestowed on heroes, and had a temple at Abdera.

Castor and Pollux, who were among the Argonauts, were twin sons of Jupiter and Seeda, and brothers to Helena. On account of their descent they were called *Dioscuri*. Castor distinguished himself in the management of horses, and Pollux in boxing and wrestling. The last exploit of the Dioscuri, was their contest with Lynceus and his brother Idas. Castor was slain by Lynceus, and Lynceus by Pollux; and as Idas was about to avenge his brother, Jupiter smote him with lightning. The festival called *Dioscuria* was in honor of these brothers, celebrated especially by the Spartans. On this occasion, the gifts of Bacchus were very freely shared. It was amidst the drinking at the feast in honor of Castor and Pollux which Alexander held in Bactra, that he madly slew his devoted friend, Clitus. This festival is supposed by some to have had the same origin as the famous mysteries of the Cabiri, which were celebrated especially at Samothrace, and were thought to have great efficacy in protecting from shipwreck and storms.

They were said to be placed among the marine gods, from having cleared the Hellespont and the neighboring seas from pirates.

They were invoked as averters of evil, and white lambs were sacrificed to them. The Romans honored them especially for services supposed to be received from them in pressing dangers, as in the battle with the Latins near Lake Regillus. They constantly swore by their names; the oath used by the women was *Æcastor*, or by the temple of Castor; that of the men was *Ædopol*, or by the temple of Pollux.

There is not a joy the world can give like that it takes away.

Israel Putnam.

Around this Revolutionary hero clings a halo of romance, so that almost every school-boy has heard some anecdote of Putnam; yet it will not be uninteresting, we hope, to glance along the history of his life and exploits.

He was born at Salem village, now Danvers, in Massachusetts, on the 17th of January, 1718. His parents were in plain but comfortable circumstances, and he received the common school education afforded by the ordinary New England town of to-day. He was a sturdy, hearty, independent boy, possessed of a generous, impulsive courage that was prompt to respond to the cry of the defenceless. It is related of him that visiting Boston in his boyhood, he was so scoffed at and ridiculed for his awkwardness by a boy nearly double his size, that, at last, his patience yielded to anger, and he administered a flagellation upon the impudent youth that he remembered for the rest of his life.

Before he attained his majority he married a Miss Pope, of Salem. She bore him ten children, and died just as the Colonial troubles were beginning. Soon after his marriage he removed to Pomfret, in Connecticut, and settled upon a tract of wild land which he had purchased. He toiled manfully to subdue the original curse of brush and bramble which encumbered his property, and the rough landscape conquered by his persevering hand soon blossomed with the fruitful harvest. He was energetic and of good judgment, and in a short time he was in a prosperous condition.

You have heard of his attacking the she-wolf in her cave, from which daring conflict he returned victorious, and immediately and deservedly became the hero of the community.

When the New England Colonies became engaged in the French war, he was one of the first to volunteer his services in the army. He was given a captain's commission, with orders to raise a company. He was soon on his way to Fort Edward with a company of men—the flower of the country—around him. In this position Putnam performed many a daring and dangerous exploit, several times narrowly escaping with his life. After this trouble had died out he returned to Pomfret.

On one occasion it is told of him, while he was attached to Abercrombie's army, he, with a single companion found himself in the darkness quite within the French lines. The sentinels fired upon them and a bullet cut a hole in Putnam's canteen, and fourteen passed through the blanket he wore strapped to his back, while his companion escaped with only a slight wound. It was one morning in February, 1758, a fire broke out in Fort Edward and made considerable progress ere it was discovered. The garrison endeavored to check the flames without success. Putnam and a detachment of his men crossed the river on the ice as soon as they saw the fire, and reached the fort just as the flames were nearing the magazine. The water-gate was thrown open, and the men formed a line to pass the buckets of water from the river. Putnam mounted to the roof, and as the buckets came up to him, he dashed the water upon the flames. This position of imminent danger he held until ordered down by the commander of the fort. He leaped to the ground just as the roof came crashing in. The fire was now within a few feet of the magazine and an explosion was to be momentarily apprehended. Then the hero dashed between the flames and the magazine, which was already charring with the heat, and poured painful after painful upon the smoking lumber, with only the heroic remark, "If we must be blown up, we will all go together." His noble example inspired like courage in those around him, and the fort was saved; but so severely was Putnam burned that he was obliged to remain a month in the hospital.

At another time he was about crossing the Hudson, nine miles below Fort Edward, and when his bateau was about to land he found himself almost precipitated into an Indian ambuscade. There was no chance to save himself but to trust to the mercy of the rapids which were roaring over the rocks below. He unhesitatingly headed his boat in that direction, safely shot down over the seething flood and landed below, causing the Indians to believe that the Great Spirit had him under especial protection and they abandoned all thoughts of capturing him.

Again and again, fearful perils environed him, but he miraculously escaped. After the surrender of Montreal Putnam returned home; but in 1762, Great Britain having declared war with Spain, he, as lieutenant-colonel, accompanied this expedition. He bore himself gallantly through this campaign and returned home with well-earned laurels.

Then came the threatened troubles between the Colonies and England. British officers were much surprised that, knowing the forces of England's trained armies so well, he should side with the colonists.

"We will resist," said the hero, "and have the honor of ridding our country of the yoke of tyranny. Our forefathers would not bear this yoke, neither will we."

At this time he was residing at Brooklyn, on the eastern border of Connecticut. On the morning of the 20th of April, 1775, he was plowing in the field preparatory to planting his wheat and corn. Near noon a smoking-hot steed dashed up, while a panting courier informed him of the previous conflicts at Lexington and Concord. Not a moment's hesitation followed. He unyoked his cattle from the plough, and calling to the lad who had been driving them to run for his coat, Putnam dashed for his stable and saddled his fleetest horse. Catching his coat from the boy, he leaped upon his steed's back, and thundered away towards Cambridge. There, late at night, he reported himself to General Ward. Fierce eloquence and fiery counsel was followed by rapid action in those trying times. It would fill many a page to narrate his deeds of valor.

When the Colonists were first driven from Bunker Hill he was beside himself with rage. He tried to rally the men. Seizing the Connecticut flag in one hand, he brandished his sword with the other, and hoarsely shouted to them to rally. "Make a stand! make a stand. One more shot; in God's name, give them one more!" he pleaded; but the panic-stricken men continued their flight, only he rallied a few, and with them fortified Prospect Hill. Two days after that battle, Putnam was appointed one of the four major-generals of the Continental army.

Many a disaster to the undisciplined troops was prevented by the invincible energy of this flinty hero. In forced marches, during retreats, his ever-watchful eyes guarded and guided the too often demoralized troops. For sound, far-reaching judgment, for rapidity of action and heroic valor, Israel Putnam was second only to George Washington. In active service until he was seized with paralysis in 1779, he was then obliged to retire to private life, where he enjoyed peaceful quiet for eleven years. He died May 29th, 1790.

Only the most ardent temperament, added to the most appreciative mind, can properly value the services of soldier-martyrs, who cut themselves adrift from all the privileges of home enjoyments or luxuries, and warm attachments, to meet hardships, exposures, wounds, and, perhaps, death, to secure our birthright—Liberty. Washington Irving pays this just and eloquent tribute to the memory of this noble benefactor of our country:

"A yeoman warrior—a patriot brave and generous; forgetful of self in time of danger; ready to serve his fellow man in any way; to sacrifice official rank to the good of the nation's cause. Pattern for all soldiers, eminently a hero, his is one of the talismanic names of the Revolution that stirs the patriotic blood like a thrilling trumpet blast. Gather up such names as the precious jewels of our history; garner them as the nation's treasures, and hold them immaculate from the inroads of time and decay."

BATTLE OF HOHENLINDEN.

Between the rivers Inn and Isar, in Bavaria, one of the German States, there is a large tract of sombre firs and pines, similar in many respects to the Black Forest of Wurtemberg. The trees grow thick and luxuriant, and tangling masses of vines and undergrowth render the region dark and gloomy. Near the centre, on one of the great roads cut through from Munich, is the little village of Hohenlinden, celebrated as the scene of one of the most terrible battles the blood-drenched soil of Europe ever witnessed.

France was at war with the confederated powers of

Europe. The rising greatness of Napoleon Bonaparte had been made manifest to the world. He had crossed the Alps, and vanquished the Austrians at the great battle of Marengo, surmounting obstacles hitherto deemed beyond the power of man to accomplish; scattering his enemies as the whirlwind scatters chaff, and his name had gone forth to the four quarters of the globe as the monarch of military chieftains.

Moreau, the military rival of Napoleon, commanded the magnificent French army on the Rhine, near the confines of Germany. Long rows of white tents, with hosts of ambulance wagons, horses, cannon, and all the paraphernalia of war, formed the grand picture of the busy camp. The third of December, 1800, was a day long to be remembered. The night set in with storm and gloom, and thousands had beheld the sun for the last time. Calling his aides about him, the brave Moreau ordered a rapid movement, hoping thereby to take the Austrian army, then only a few miles distant, by surprise, and gain a decisive victory. In a few moments 60,000 men were in motion.

The great clocks upon the tall spires of Munich had just tolled forth in solemn cadence the hour of midnight. The resistless storm swept through the black forest like a raging hurricane, as though God looked down in anger upon the moving hosts. Already the snow was deep upon the ground, and falling so rapidly that it blinded the faces and almost smothered the advancing legions. The sombre evergreens, in sheltered localities, were bowed down beneath the weight of Winter's white frozen mantle, while the timber in the more exposed positions on the hillsides waved their naked branches and moaned amid the roaring gale. It seemed hard to start out in such a night, but their general had promised them an easy victory, and they faced the cruel tempest with courage and determination.

At the same time, the Austrian army, 70,000 strong, commanded by the Archduke John, was marching upon them for a similar purpose. Each was ignorant of the designs of the other, and had chosen the same hour of this dark night of wind and storm to surprise and vanquish their adversaries. Suddenly the heads of the two advancing columns met. Each had surprised the other! The silence of astonishment for a moment reigned, and then a scene of confusion began. In an instant the red blaze of artillery belched forth, and the forest shook beneath the mighty thunders of battle.

Now commenced such a scene as the world has seldom witnessed. With all the fury of maddened desperation one hundred and thirty thousand combatants hurled themselves upon each other. In the darkness of the night each judged of the other's position by the flashes of their guns, and fired accordingly. Soon many divisions were intermingled in inextricable confusion. The blaze of musketry and artillery lit up the gloomy forest at times almost to the pitch of noonday, instantaneously disclosing a scene of horror and carnage well calculated to make the stoutest heart tremble with terror. Great masses of smoke rolled up over the storm-beaten forest, as if to cover the cruel work with a pall, and shut out the awful carnage from the all-seeing eye of an offended God. As the blinding glare blazed forth, thousands were seen with powder-blackened faces, and enveloped in clouds of sulphurous smoke, rushing upon each other with gleaming sword and dripping bayonet, like imps of the infernal regions. The crash of falling trees, the ring and clash of steel as sword struck sword and bayonet crossed bayonet; the rattling of musketry, the yell of charging squadrons, the roll of drums and burst of martial music, mingled with the deafening roar of artillery, caused the very ground to quake. Above all rose the shrieks and screams of the wounded and dying, falling by thousands beneath the demoniacal fury of mankind. The snow was trampled and crimsoned with gore, and heaps of men and horses lay slaughtered in every direction. Along the dark ravines thousands lay weltering in blood, rolled up in garments and blankets saturated with gore, there to moan and freeze, while the tide of life ebbed away, crimsoning the snow about them; with no one near to hand them a cup of water, to smooth their lowly pillow, or to carry the last dying message to loving friends, never more to be seen on earth.

"O who the woes of war can tell,
And paint its terrors true and well?"

As morning dawned they were more furious, and the fearful conflict appeared to deepen. Advancing and retreating squadrons dashed over the blood-stained field, striking right and left, with sword and sabre, while cannon balls ploughed their ranks and strewed the ground with heaps of slain. Over these they rushed like demons of destruction, regardless of the shrieks of the wounded who lay helpless, and pleading for mercy, as their bones were crushed beneath the iron hoofs of chargers, or the ponderous wheels of heavy guns.

At length the Austrian army began slowly to give way. It was a proud moment to the weary Frenchmen. The bugle sounded the charge, and the army of Moreau dashed forward with redoubled energy to conclude the bloody scene. A moment more, during which the very powers of Hades seemed let loose, and the contest was decided. The French had gained the victory, and the Austrians were in full retreat, leaving twenty-five thousand killed, wounded and prisoners behind them. One hundred pieces of artillery, with an immense number of horses, wagons, and munitions of war, fell into the hands of the victors.

The vanquished Austrians rushed in dismay down the valley of the Danube, followed by the victorious French, who rained an incessant shower of balls and shells into their shattered and retreating ranks, and paused not until they stood within thirty miles of Vienna. Terms of adjustment were soon agreed upon, and hostilities ceased. The power of the confederated nations was broken, and Europe rested in peace.

The morning after this decisive struggle, the dark forest presented a scene that humanity shudders to contemplate. The timber and undergrowth were rent and twisted as though by a hurricane; and the bodies of nearly twenty thousand torn and mangled soldiers lay cold and silent in the trampled and blood-stained snow. In places they were literally piled in heaps; and where a spark of life remained, the groans of agony, as they faintly whispered of the far distant home and the little family circle they would never see again, was enough to draw tears from hearts of stone. The wail of widows and orphans went up from ten thousand agonized homes, and half the nations of Europe were plunged in mourning. Such is war. Truly it is the trade of barbarians. Its horrors no tongue can tell, no pen describe. What an awful load rests upon the instigators of the deadly strife! We forbear to dwell longer upon the awful scene of blood. Let us ask the recording angel to look down in pity, and with a tear blot out the dark record from the memory of heaven.

Hohenlinden has been thus faithfully portrayed by the poet Campbell:

On Linden, when the sun was low,
All bloodless lay the untrodden snow,
And dark as winter was the flow
Of Iser, rolling rapidly.

But Linden saw another sight,
When the drum beat at dead of night,
Commanding fires of death to light
The darkness of her scenery.

By torch and trumpet fast array'd,
Each warrior drew his battle blade,
And furious every charger neigh'd,
To join the dreadful revelry.

Then shook the hills with thunder riven,
Then rush'd the steeds to battle driven,
And louder than the bolts of heaven,
Far flash'd the red artillery.

And redder yet those fires shall glow,
On Linden's hills of blood-stain'd snow.
And darker yet shall be the flow
Of Iser, rolling rapidly.

'Tis morn—but scarce yon lurid sun
Can pierce the war-clouds, rolling dun,
While furious Frank and fiery Hun
Shout in their sulph'rous canopy.

The combat deepens:—On, ye brave,
Who rush to glory, or the grave!
Wave, Munich, all thy banners wave!
And charge with all thy chivalry!

Ah! few shall part where many meet!
The snow shall be their winding sheet,
And every turf beneath their feet
Shall be a soldier's sepulchre.



A TEXT AMONG THE CRESSES.

BY M. M. P.

Star-like honeysuckle trailing
O'er the fence in wreaths capricious,
Summer breezes sailing, sailing,
Idly by with breath delicious;
And a merry falling tinkle,
Where the brook sweeps mossy ledges,
And a sparkle, and a twinkle,
Of the water 'neath the sedges.

And a merry little maiden,
With her tangled golden tresses,
Standing barefoot there, all laden
With a wealth of emerald cresses;
With her white feet in the water,
Oh, so fresh and cool and pleasant,
And the green boughs arched athwart her,
In a swinging, swaying crescent.

And she sings, in rambling rhyming,
Some child-lay of "Brown-haired Kitty,"
While the brook is chiming, chiming,
With her sweet uneven ditty.
Little Nell, the blacksmith's daughter,
Pet and pride of all the village,
Paddling in the tinkling water,
Cresses from its breast to pillage.

But the artist, as he passes,
Listening to the baby measure,
Crushing down the scented grasses
With his strong foot, looks with pleasure,
"Such a gem for sketch or painting!"
Thinks he, as he gently pauses,
And the song, descending, fainting,
Dies away in broken clauses.

Then the golden locks are shaken,
And the treasured pebbles rattle,
And the sketch is duly taken
'Mid the lassie's mirth and prattle;
"Oh, who taught you? you are clever!"
(Sweet unconscious little preacher),
"Will the picture last for ever?
Shall you give it to your teacher?"

Fortune, fame, the smiles of fashion,
Crown the artist with successes,
New York ladies take a passion,
For the pictured child and cresses;
But he bows to Christ the Master,
As he older grows, and richer,
Ever hears, as praise falls faster,
"Shall you give it to your teacher?"

All true art from God proceedeth,
Yielding thy first fruits to His honor:

For thy soul with light He feedeth,
Showers loveliness upon her:
On this faith he reared his glory,
And this brief text was his preacher,
Till he died, renowned and hoary—
"Shall you give it to your teacher?"

Benjamin Franklin.

Jonathan Edwards may be characterized as a man of the next world. Benjamin Franklin was emphatically a man of this world. Not that Franklin lacked religion and homely practical piety, but he had none of Edwards' intense depth of religious experience. God was to him a beneficent being, aiding good men in their hard struggles with the facts of life, and not pitiless to those who stumbled in the path of duty, or even to those who widely diverged from it. The heaven of Edwards was as far above his spiritual vision as the hell of Edwards was below his soundings of the profundities of human wickedness; but there never was a person who so swiftly distinguished an honest man from a rogue, or who was more quick to see that the rogue was at war with the spiritual constitution of things. He seems to have learned his morality in a practical way. All his early slips from the straight line of duty were but experiments, from which he drew lessons in moral wisdom. If he happened occasionally to lapse into vice, he made the experience of vice a new fortress to defend his virtue; and he came out of the temptations of youth and middle age with a character generally recognized as one of singular solidity, serenity, and benignity. His intellect, in the beautiful harmony of his faculties, his conscience, in the instinctive sureness of its perception of relations of duties, and his heart, in its subordination of malevolent to beneficent emotions—all showed how diligent he had been in the austere self-culture which eventually raised him to the first rank among the men of his time. Simplicity was the fine result of the complexities which entered into his mind and character. He was a man who never used words except to express positive thoughts or emotions, and was never tempted to misuse them for the purposes of declamation. He kept his style always on the level of his character. In announcing his scientific discoveries, as in his most private letters, he is ever simple. In breadth of mind he is probably the most eminent man that our country has produced; for while he was the greatest diplomatist, and one of the greatest statesmen and patriots of the United States, he was also a discoverer in science, a benignant philanthropist, and a master in that rare art of so associating words with things that they appeared identical. Edwards represents, humanely speaking, the somewhat doleful doctrine that the best thing a good man can do is to get out, as soon as he decently can, of this world into one which is immeasurably better, by devoting all his energies to the salvation of his own particular soul. Franklin, on the contrary, seems perfectly content with this world, as long as he thinks he can better it. Edwards would doubtless have considered Franklin a child of wrath, but Francis Bacon would have hailed him as one of that band of explorers who, by serving nature, will in the end master her mysteries and use their knowledge for the service of man. Indeed, the cheerful, hopeful spirit which runs through Franklin's writings, even when he was tried by obstacles which might have tasked the proverbial patience of Job, is not one of the least of his claims upon the consideration of those who rightfully glory in having such a genius for their countryman. The spirit which breathes through Franklin's life and works is that which has inspired every pioneer of Western wastes, every poor farmer who has tried to make both ends meet by the exercise of rigid economy, every inventor who has attempted to serve men by making machines do half the drudgery of their work, every statesman who has striven to introduce large principles into our somewhat confused and contradictory legislation, every American diplomatist who has upheld the character of his country abroad by sagacity in managing men, as well as by integrity in the main purpose of his mission, and every honest man who has desired to diminish the evil there is in the world and to increase every possible good that is conformable to good sense. Franklin is doubtless our Mr. Worldly Wiseman, but his worldly wisdom ever points to the Christian's prayer that God's will shall be done on earth as it is done in Heaven.

Food for Babes.

For some years past, "juveniles," as the publishers call the books which are specially written for boys and girls, have been a very important item in the book trade. They are consumed in large quantities by the little men and women of the present day, and it is suspected that not a few of the papas and mamas themselves are devoted to this literature. Some of these books are good; but there are very few of them which are not either vitiated by a mawkish sentiment and a nauseous caricature of religion on the one hand, or, on the other, filled with stories of extravagant adventure, told in the worst melodramatic style. Than this nothing could be worse in effect upon the morals or the taste. Good, honest fairy stories never hurt any child, and such tales as those of the Brothers Grimm are delightful and comforting to children until the time when they have grown up and their beads are gray. But when it comes to *The Boy Pioneer*, or *the Wild Mustang of the Prairies*, and the like, with their absurd mixture of realism and impossibility, and their defiance at once of reason and morality, sensible men and women feel like cutting off all specially juvenile literature, and confining children to the Bible, the Catechism, and the *Pilgrim's Progress*. Such a reaction would in the end be harmful, for it would "make Jack a dull boy." But how much more harmful must be the literature—if so it must be called—which provokes such a feeling!

But books are not the worst provision that is now made for youthful readers. To the "juveniles" succeeded the magazines intended for children, and this sort of thing has gone on until we expect ere long to see the announcement of *The Popsopoon Monthly—A Magazine of Science, Literature and Art, for Babes of Both Sexes*. To magazines succeeded inevitably the illustrated weekly; and we must say that, judging this hebdomadal juvenile literature by what we have seen of it, there could be nothing worse, nothing more depraving to taste or to morals, put into the hands of a boy or girl, within the bounds of decency. We have before us one of these precious publications, in which the first illustration shows a dozen schoolboys tossing a schoolmaster in a blanket. A pretty suggestion to make to boys—a fine position in which to place before them the representative of one who should have authority over them! True, it may be said that this schoolmaster deserves to be tossed in a blanket. But who is to decide that? Is it to be put into the heads of the boys that they are to make themselves judges and executioners, set up a Holy Vehme, or a court of Judge Lynch? Such notions come fast enough of themselves, without the aid of pictorial illustration, which always gives a certain elevation to the subject in the minds of the young and uneducated. Another of these illustrations—that of a story with the thrilling title of "Red Dog, Blue Horse, and Ghost-that-lies-in-the-wood," shows a frantic negro who has just chopped off the ear of a person offensive to him in some way. The gore is dropping from the held-up-in-the-air ear, and from the knife, and pouring from the head of the victim. This picture is quite charming. Its admirable effect must be quite equal in degree to that of the favor it will find with all well-bred boys and girls—for to girls as well as to boys, is this publication directed, as its title announces. Another wood-cut, which illustrates a story with the suggestive title, "Young Ironsides, or, The Pirates of the Treasure Ship," may be understood from its legend taken from the story: "As quick as flash Moses seated himself on his uncle's breast, thus making a sort of sleigh of his relative, as he slid down the inclined frozen surface." It must be confessed that the old uncle, with a sort of night-cap on, a sharp nose, and a retreating chin, cuts a ridiculous figure, while young hopeful is as gay as a lark. But whether the young American is in actual need of these reminders that respect and deference are due to no one may be doubted without suspicion of more insanity than would secure acquittal of a premeditated murder. Yet another shows a lad lying in his little bed, to whom an "angry parent" down stairs cries: "I shan't call you again, Charles;" whereupon Charles replies, "That's good; I can take another nap." And the name given to this elegant illustration of filial respect is "Satisfactory Sauce."

Bad as all this is, yet worse is to be found in the same pages. It is not enough to entertain boys and girls with amusing pictorial illustrations of the ways in which they may defy and insult their teachers, their uncles, and their fathers; their own vanity must be vandered to. We have one bare de-

vised to "Distinguished Scholars at our Schools," in which the "distinction" gained by two boys and two girls in the ordinary studies of grammar schools is set forth, with particulars as to how many marks they have had, and how many times they have been at the head of their classes. Besides this, the portraits of these eminent individuals are given, with biographical sketches. Than this we can conceive nothing worse in its moral influence upon the particular boys and girls thus set up for public admiration, and upon the whole body of school-going children. The mere knowledge gained at school is of small value in comparison to the discipline received, or which ought to be received there. To do duty because it is duty, to seek knowledge for the sake of knowledge, to be modest, reserved, unobtrusive, to learn by listening and thinking, to repress selfishness and egotism—these are, or should be what the child learns from the teacher, quite as much as certain facts or certain intellectual processes. But here we have the bait of publicity offered as the reward, if not as the actual inducement to studious habits and correct conduct. The boy or girl of ten or twelve years is stimulated to exertion by seeing the portrait and biography of a companion of the same age published to the world as that of a "distinguished scholar." Nothing could be better adapted to the formation of young prigs, or to the stimulation of lads and girls of precocious minds and excitable natures into unhealthy exertion. The vice of this sort of reading and illustration for children is as great in one way as that on which we first remarked is in another. If such is to be the nature of the periodical literature intended for boys and girls, we might better return to the days when books were scarce treasures, when newspapers were not, and when the only resource of boys for amusement was rude play and practical joking.

Successful Workers.

One great need of the world is more sober, profitable thinking. People go about their business in a headlong way, never pausing to think of results and possible contingencies that will seriously affect the matter. A great mathematician said, that if he had but three minutes in which to work a problem on which his life depended, he would spend two of the minutes in considering which was the best way to perform it. In even so simple a thing as laying out a garden, it pays first to make a plot of the ground, and divide off the number of feet to be given to this and that products, and the respective places they are to occupy. There will, no doubt, be various changings of the plan, but they are much easier made on paper than on the ground. So it is in all other pursuits. It is easier to change and improve our plan before we commence to work than after we get well under way.

Advice from others is a good thing, yet, too much talking is apt to be a disadvantage to the working powers. One of Commodore Vanderbilt's strong points was, not to talk about anything until he had done it. It is an old saying of our grandfathers—"Say well is a good dog, but Hold-fast is a better." The great and successful workers have never been the great talkers. They do not waste their strength that way.

Give to each piece of work as it comes up before you your best labor. Do it as if it were the only piece of work to be done that day. There is a satisfaction in work thus executed, that the slack workers know nothing of. Besides, "work well done is twice done." You do not have to go over it again the next day to repair the weak spots. It gives you a feeling of solid self-respect to look on the fruit of your labors when they are well done, and it commands the respect of your neighbors also. "There is nothing that succeeds like success," nor any drawback like frequent failures. Think well, and work well, and you will hardly fail of becoming a workman that "needeth not to be ashamed."

HAVE AN OBJECTIVE POINT.—A person who has no object in life is apt to run a vagrant and useless career. A man who aims at nothing cannot reasonably expect to hit anything. In military operations there is always what is called the objective point. The objective point is the point to be made, the thing to be done. All the forces of the army are concentrated on the making of that point; and when that point is made success follows. In one sense life is a warfare—it is a succession of campaigns. And every one should have his objective point—a clearly-defined purpose—and work up to it with undeviating persistency. This is the only way to succeed.

An Indian Picnic.

In a report of Bishop Whipple's annual visitation to the Chippewa Indians of the White Earth Reservation, there is an account of a picnic enjoyed by them on the anniversary of the consecration of their house of worship, which illustrates the effects of the gospel of Christ, when substituted for the gunpowder and whisky treatment which has so long been practised on the red men.

After the Indians had assembled in front of the church in great numbers, among them a volunteer company, composed entirely of Indian soldiers, marshalled under the nation's flag, the head chief Wabonaquot began an oration, describing in glowing terms the happy state of the Chippewas before the Whites appeared among them. He told how they were virtuous and happy; how their lakes were full of fish, their woods alive with deer and elk, their prairies covered with buffalo. There was always plenty in the hunter's wigwam. It was almost the happy hunting ground by anticipation. They were gorgeously dressed, and wanted for nothing. At this point a man and woman stepped from the elevated church porch, splendidly dressed in the costume of the ancient Chippewas: beads, belt, pouch, leggings, embroidery, etc. All eyes were immediately turned to these representatives of primeval happiness and prosperity, who, after thus giving point to the chief's remarks, withdrew.

He then went on to tell how the white man came among them and they fell; how under his baleful influence they sunk lower and lower to the deepest pitch of degradation and misery. At this point he turned again to the church door, and there two figures appeared: a man and woman, clad in a few old wretched tatters, and looking the very picture of the deepest wretchedness. Their shreds of blankets flapped about their naked limbs, and filth and misery were stamped on every feature. As if amazed at this extremity of wretchedness, the Chief apostrophized them, and demanded of them who they were, and what it was that had brought them to be so extremely miserable. In answer to this, the man took out a whisky bottle from his bosom, and putting it to his mouth, took a long, loving draught. His wife, fearing he would drink it all, or else with the impatience of an old toper, snatched it from him and put it to her mouth. It was old Stump, the Indian sexton of the church, and his wife; and well they did their part.

When they had retired, the Chief went on to speak of the new era which had dawned upon them with the coming of Bishop Whipple among them, and with honest pride spoke of the great progress they had made, and of the still better days that were before them. And to illustrate this, appeared again on the church steps the Chippewa of the new and happy era: a man and woman well dressed in citizens' clothes; looking like any other respectable American citizen, except in so far as the features of America's primeval race made a difference. It was Samuel Madison, son of the Grand Medicine Man, She-teonce, and now one of our candidates for Holy Orders. Afterward the representatives of all three eras came out and stood side by side. That little tableau, well conceived and executed by themselves, told the whole history of the Chippewa nation.

How Long to Sleep.

The fact is that as life becomes concentrated and its pursuits more eager, short sleep and early rising become impossible. We take more sleep than our ancestors; and we take more because we want more. Six hours' sleep will do very well for a mason or bricklayer, or any other man who has no exhaustion but that produced by manual labor; the sooner he takes it after his labor is over the better. But for the man whose labor is mental, the stress of work is on his brain and nervous system, and for him who is tired in the evening with a day of mental application, neither "early to bed nor early to rise" is wholesome. He keeps letting down to the level of repose. The longer the interval between the active use of the brain and his retirement to bed, the better his chance for sleep and refreshment. To him an hour after midnight is probably as good as two hours before it, and even his sleep will not so quickly and completely restore him as it will his neighbor who is physically tired. He must not only go to bed later, but lie longer. His best sleep probably lies in the early morning hours, when all the nervous excitement has passed away, and he is in absolute rest.

Railroading in Early Days.

A writer in the *Hartford Courant* gives reminiscences of railroading in Connecticut forty years ago. When the Hartford and New Haven road was first opened it had very meagre facilities, the road bed was poor, had only crasp rails, which were all the while curling up and running through the car floors, and the cars were small and the locomotives weak. In fact, it didn't take much to block a train in those days. Sometimes an inch of snow on the rails would do it. Henry C. White, one of the first conductors on the road, tells how he and the baggage master used to sit in the front of the locomotive, one on each side, and brush off the snow from the rails with a broom as the train slowly crawled along. Each had a pail of sand and sprinkled a handful on the rail when necessary. The driving wheels (engines had only one pair then) used to slip round and round, and torment them almost to death. On one occasion a train got "stuck" on the Yalesville grade by one inch of snow, and the wood and water gave out before the locomotive could overcome it. At last they got out the neighbors, yoked four pairs of oxen to the train and drew it, passengers, baggage and all, into Meriden with flying colors.

In the early days of the road the stage-coach drivers used to regard the cars with great contempt. Indeed, thirty years ago the passenger trains were three or four hours on the road to New Haven, and the stage-coaches went in about the same time. Superintendent Davidson remembers riding with his father in a carriage drawn by two horses, which had a race with a passenger train near Wallingford, where the turnpike and railroad are parallel for three or four miles, and during all that time the carriage kept even with the train. There were only two trains each way, daily, then, both carrying passengers and freight. The old cars were divided into three compartments, opened on the side, and had twenty-four seats. The locomotive had only twelve-inch cylinders, and no cabs to protect the engineer and firemen from the weather. The oldest locomotives were the Hartford, Quinnipiac, Charter Oak, and New Haven.

Anecdote of the Telegraph.

Years ago, when the electric telegraph was new, and a mystery to the masses, there came trouble one Saturday night into the Bank of England. The business of the day had been closed, and the balance was not right. There was a deficit of just £100 in gold. Had it been a hundred thousand or a million there could not have been greater commotion. It was not the money but the error that must be found. For some of those clerks there could be no sleep until the loop had been taken up. All that night, and all Sunday, a squad of clerks were busy. It seemed as if the Old Lady of Threadneedle Street would go crazy over that £100. It was surely gone from the vaults, but no pen-mark told where. Meantime a young clerk, on the Sunday evening, wending his way homeward, fell to thinking of his busy companions at the bank, and suddenly a suspicion of the truth flashed across his mind. On the following morning he hurried to his post of duty and told the chief what he suspected. The mistake might have occurred in packing some boxes of specie for the West Indies, which had been sent to Southampton for shipment. The chief acted upon the suggestion. Here was an opportunity to test the powers of the telegraph—lightning against steam, and steam with eight-and-forty hours the start. Very soon the telegraph asked a man in Southampton,

"Has the ship *Mercator* sailed?"

The answer came back: "Just weighing anchor."

"Stop her in the Queen's name!" flashed back the lightning.

"She is stopped," was returned.

"Have on deck certain boxes (marks given), weigh them carefully, and let me know the result," telegraphed the chief.

The thing was done, and one box was found to be about one pound and ten ounces avoirdupois heavier than its mates—just the weight of a hundred golden sovereigns.

"All right—let the ship go!"

The West India house was debited with the £100, and the Old Lady of Threadneedle Street was happy. She had proved the electric telegraph to be a great thing.

The Flight of Money.

All money has wings, and seems to the possessor to fly with an unaccountable velocity. But in fact nothing is more various than the rate of this flight; and it must be remembered that though there is Scripture warrant for the simile, it is specially applicable not to money simply, but to wealth. It is riches that certainly take to themselves wings. To the mere observer, other people's money constantly surprises not by its flight, but rather by what it achieves. There are incomes that seem rather to brood and hatch than to take flight. How is the money made to go so far? is the question with the on-looker, while the owner is asking, why does it not go further? For in truth nothing goes so far as, by a calculation beforehand, it can be made to promise. The wings that fly away with money are often very tiny ones. No coin, down to the smallest, can rest in some pockets. But as money trifled away in small outlays makes no show, the real self-restraint exercised in renouncing such indulgence does not come into the observer's reckoning.

Large fortunes may be hoarded, but when once they begin to be spent, every fraction is more astir, more bent on disappearance into space, than is the case with smaller accumulations. The degree of care required to check money's flight in the case of a small income must be quadrupled in that of a large one. It belongs to the nature of things that people are never as careful of other men's money as they are of their own. This is not a vice, or, at worst, it is so common a frailty that it must be set down to the general score and be allowed for as such. Mere grumbling is a weakness; either set yourself to guard against it by a watch-dog vigilance, or make your calculations accordingly. Nobody can spend any income beyond an artisan's weekly wages without calling in the aid of paid agents to spend it with him and for him; and the artisan has thus the advantage over his social betters that with reasonable prudence he profits most by his money. Next to him comes the man who has no more servants than are exactly necessary for the work they have to do. A large income cannot be spent on this plan. Its disappearance implies a numerous body of spenders, each more easy as to how the money goes than a master can possibly be, all aiding the natural buoyancy of riches with some peculiar fashion of wings of their own devising. In proportion to the magnitude of an income is—to vary the simile—the leakage going on through unforeseen crannies. Nobody can make eight thousand dollars a year do four times the work of two thousand without turning himself into an upper servant; and the rate of difference, and the slavery necessary to correct it, will increase as thousands grow into tens of thousands. It is an understood thing that large incomes must be reduced by an insensible evaporation. All charges for skilled labor are illustrations of the unaccountable flight of money. The degree of superiority over the common articles often goes no way at all in explaining it.

But the flight of wealth, however remarkable, in the process of legitimate spending—and in that alone is there any room for wonder—is no just test of its capacity for mysterious disappearance. Of course, when people talk of the flight of money, it means that they do not know how or where it has gone by any adequate results to show for it. Now, judged by this test, money has other spheres in which its volatile properties show themselves with far more marked and conspicuous effect. Money given, as some people give it, has a rate of disappearance into space out of all calculation greater than money spent. We must all give, and men of large fortune must give largely, if only to preserve themselves from the sordid, creeping temptations which money brings with it; but while the owner of wealth must look after the spending of his own money if he would keep the slave to the efficient discharge of its duty, much more should he look after the disposal of it where his aim is higher than any personal end. A thousand dollars given and done with, costing the donor no more trouble than the pang of parting—which we by no means wish to underrate—may emphatically be said to take wing. Perhaps the act of giving is all that falls to his share; perhaps it is not possible to attend to its disposal; he is doing what he can; but this only proves that money has no fixed, unvarying value, that one dollar in some hands does the work of twenty in others, and that only when the whole man devotes his energies to the task—not alone the heart to give, but the hand to labor and the head to direct—does money do the work assigned to it.

Money lent becomes suddenly and absolutely volatile—that is, money lent to one of that class whom we may call borrowers by nature. Circumstances reduce some men to borrow, to whom the act is repugnant because uncongenial. To them a debt is a weight to be got rid of at any sacrifice of personal ease. But we are speaking of the natural borrower, sanguine and self-satisfied, to whom debt is a sort of necessary condition for the due exercise of these qualities. Money lent to these people does not even seem to alight; it exhales on the instant.

Nothing that we have said is meant to detract from the duty of giving. Our argument only goes to prove it a difficult duty, demanding often a painful exercise of self-denial and the sterner virtues. Wise giving is not the luxury which some describe, but hard and harassing work. For our own part, we believe that, for mere personal satisfaction, the greatest pleasure—a pleasure simple, unalloyed, unvisited by misgiving—to be got out of money is in paying bills with it. We may even call it a luxury, and a luxury, moreover, that stands the wear and tear of time. The moral is a seasonable one, at any rate.

Aluminium.

BY JAS. P. DUFFY.

One of the greatest curiosities of modern times, is the production of a valuable metal from common clay, which in its pure form is simply an oxide of the metal aluminium.

The following is the manner of producing it: A mineral called "cryolite" is its most convenient source; but the following plan may be adopted to procure it from clay. This material, together with sugar and charcoal, is to be made into a paste, which is then placed in a platina tube. The tube is to be heated in a furnace to a red heat; and chlorine gas is passed over the paste. An air-tight receiver is placed at the end of the tube, and a primrose-colored powder collects therein. This powder is heated with the metal sodium in a crucible. The sodium and chlorine combining in the crucible form common salt; and the metal aluminium is found at the bottom of the crucible, of a white color, and having the appearance of silver. In many of its qualities it is similar to that metal.

Aluminium is susceptible of a high polish. It is very ductile, and may therefore be drawn into a wire. It may also be easily beaten out into sheets or plates, and in that form may be employed for a vast number of purposes. It has been made into spoons, spectacle frames, helmets, chemical apparatus, and various other utensils; and it promises to be of extreme value in its employment for all purposes where freedom from action by chemical agents is required.

The only oxide of this metal is alumina; and it may be produced by adding a solution of carbonate of ammonia to one of common alum. The precipitate when dried affords a white powder, which is the earth alumina. This substance is found in the form of clay, is of great importance, and as such is the material from which china, pottery, etc., are produced. The color of the clay varies considerably, the purest, or "kaolin," being nearly white. The quality, of whiteness, comparative transparency, etc., found in the highest kinds of porcelain, are due to the nature of the clay used in the manufacture. With the kaolin, a quantity of flint, reduced to impalpable power, so that an homogeneous paste is produced. This undergoes the process of fashioning into the shape of the articles required. Each article, as it is made, is removed to a kiln fitted with shelves, on which the vessels to be baked are arranged. A fire is then kindled in the centre, and by it the articles are made compact. In this state, however, they are porous and unfit for domestic use. The next process is to convert the external surface into a kind of glass. This is effected by washing the surface of the vessels, by means of a mixture of powdered felspar and borax, for the better class of goods, and of common salt for other goods. The articles are again removed to a kiln, and by means of an intense heat the surface is fused, and a glaze formed thereon. On cooling, the pottery is then ready for sale.

If patterns, such as those observed on china and plates, be required, they are painted on before the glazing, and in that process they are "burnt in" on the surface of the ware.

Light and the Complexion.

The action of light on the human skin is manifest. It browns and tans the teguments by calling out the productions of the coloring matters they contain. The parts of the body usually bare, as the skin of the face and hands, are darker than others. In the same region, country people are more tanned than town residents. In latitudes not far apart, the inhabitants of the same country vary in complexion in a measure perceptibly related to the intensity of solar light. In Europe three varieties of color in the skin are distinctly marked; olive brown, with black hair, beard and eyes; chesnut, with tawny beard and blueish eyes; blonde, with fair, light beard, and sky-blue eyes. White skins show more readily alterations occasioned by light and heat; but, though less striking, facts of variation in color are observable in others. The Scytho-Arabic race has but half its representatives in Europe and Central Asia, while the remainder passes down to the Indian ocean, continuing to show the gradual rising of climate by deepening brown complexions. The Himalayan Hindoos are almost white; those of the Deccan, of Coromandel, Malabar, and Ceylon, are darker than some negro tribes. The Arabs, olive and almost fair in Armenia and Syria, are deep brown in Yeman and Muscat.

The Egyptians, as we go from the mouth of the Nile up stream towards its source, present an ascending chromatic scale, from white to black; and the same is true of the Turikson, on the southern side of the Atlas, who are only light olive, while their brethren in the interior of Africa are black. The ancient monuments of Egypt show us a fact equally significant. The men are always depicted of a reddish brown, they live in the open air, while the women, kept shut up, have a pale yellow complexion. Barrow asserts that the Mantchoo Tartars have grown whiter during their abode in China. Remusat, Pallas, and Gutzlaff speak of the Chinese women as remarkable for a European fairness. The Jewesses of Cairo or Syria, hidden under veils or in their houses, have a pallid color. In the yellow races of the Sumatra Sound and the Maldives the women, always covered up, are pale like wax. We know, too, that the Esquimaux bleach during their long winter. The phenomena, no doubt, are the results of several influences arising at once, and light does not play the sole part in them. Heat and other conditions of the medium probably have a share in these operations of color. Still, the peculiar and powerful effect of luminous radiation as a part of them is beyond dispute.

City and Country.

Cities are places for work. Ambition and youth love them. There men plot and plan and execute. In them strength loves to manifest itself in arduous labors and bold undertakings. There the hope of honor and wealth finds its fruition, and while it remains as the dominant impulse in a man's mind the man will cling to the noisy street and the swarming markets. But when the bodily powers have begun to fail and the mind to weary of combinations and labors; when visions of wealth and honor have lost their power to entice, and man begins to count the number of his probable remaining years, and beholds how few they are, then his thoughts turn towards the country, and the heart yearns for the place of his birth. Youth is vain and manhood ostentatious, but age renews the modesty and the simplicity of earlier years. "I have gained," said a man to me once, "a fair share of worldly honor, and my wealth is abundant, but I have reached that period of life at which they do not seem so valuable as they once did, nor do they satisfy, and I am going back to the dear old spot where I was born to get some quiet and peace before I die, and be laid in the little graveyard where my parents sleep, when all is over."

"I do not see," said an old merchant to me once at a funeral, "how people can bear to die and be buried in cities."

I know that this is only sentiment, but it is a sentiment so honorable and accordant with the sweet philosophy of nature, that it seems to me as natural as the longing of a child to see the face of its mother. We must remember, too, that half the world are governed by sentiment, and that sentiment is often far wiser than wisdom; and while I know it makes no difference where my body sleeps when I have left it, I nevertheless confess to a wish that it might be carried through the clear sunshine to its grave, and rest at last with nothing above it heavier than the grasses and the daisies.

Oxygen.

BY JAS. P. DUFFY.

This elementary body is of the greatest importance in the economy of nature. It forms eight-ninths of all the water on the face of the globe. The atmosphere which we breathe contains one-fifth of its bulk of oxygen. In its entire absence the very existence of animated nature would cease: the earth would become a barren wilderness, every one of its productions would fail, and chaos would reign over the fair face of nature. To its gradual combination with other substances we owe the natural heat of plants and animals. When such combinations take place more rapidly we obtain our artificial heat, as in the combustion of wood, coal, and other fuel.

To its action on metals is due the development of that wonderful agent, electricity, as seen in voltaic batteries and in the vast laboratory of the mineral kingdom. All our sources of artificial light depend on it, and indeed, it is the "one thing needful" in almost every phase of our existence.

The chemist recognizes its properties in the form of a gas; and it assumes the solid or liquid states when in combination with other bodies, as in metallic oxides and water.

Oxygen may be procured for experimental purposes from various sources, the following being one:—Introduce some powdered black oxide of manganese into an iron tube, closed at one end, and into the open end fit a pewter tube so that its other end may dip beneath water, which may be held in a basin placed beside the apparatus, the closed end of which must be placed in a fire. After a short time a quantity of gas will be given off, which, on being collected, (by means of a small glass tube, having one end inserted in a gas jar and the other end placed in the water), is ready for use. Oxides are combinations of oxygen with a metallic substance, by which both alkalies and earths are produced. Iron rust is a familiar example of oxide. This seemingly valueless article is of no slight importance to the chemist, to whom the smallest particle of sand has some use. Some metals, such as gold, silver and platina, have very little attraction for oxygen; hence they may be exposed to the influence of the atmosphere for centuries and still remain unchanged. On the other hand, some metals have so strong an affinity for it as to abstract it from almost any of its compounds. The affinity of steel for oxygen may be illustrated by the following experiment: To one end of a piece of steel spring, about ten inches long, tie tightly a piece of wick about an inch long, taken from the inside of a common taper. Pass the other end of the spring through a bung or cork, which will form a holder. On lighting the taper and dipping it into a jar of oxygen, the steel will catch fire, burning most brilliantly, and filling the interior of the jar with a red powder. Here we have the rapid production of the oxide, in the form of the red powder.

The general effect of oxygen in nature is that of a life-giving principle. It breaks rocks and converts sterile land into a fruitful country. Through its action on the organic substances in plants they bud forth into leaf and produce the flower and seed. Every leaf is as a lung to a tree, and thereby plants are enabled to breathe and exist. In animals oxygen oxidises the carbon of the food, producing animal heat; and thus its agency is so universal as to leave no object out of its influence.

Vegetable Instinct.

Like the instincts of animals, the actions of vegetables might be attributed to intelligence, unless we know it to be otherwise. If a pail of water be placed within six inches of either side of the stem of a pumpkin or vegetable marrow, it will, in the course of the night, approach it, and be found in the morning with one of the leaves on the water. If a prop be placed within six inches of a convolvulus, or scarlet runner, it will find it, although the prop may be shifted daily. If, after it has twined some distance up the prop, it be unwound and twined in the opposite direction, it will return to its original position, or die in the attempt; yet, notwithstanding, if two of the plants grow near to each other, and have no stake around which they can entwine, one of them will alter the direction of the spiral, and they will twine around each other.

The Sicilian Vespers.

The terrible massacre known by the above title took place at Easter, in the year 1282. It was but a verification of the old proverb of the trodden worm turning to bite its oppressor's foot. At this period the Sicilians were ruled over by a French prince of the House of Anjou, with a tyranny of the most cruel and galling nature. Obnoxious to the Sicilians from his nation, the people had as well to bear the presence of a licentious and brutal alien soldiery, to whom nothing was sacred; and the history of the times teems with accounts of the coarse insults to which husbands and fathers of all classes had to submit, as offered to those who were nearest and dearest of their families. Under such a long course of oppression, it was but little wonder that the hot fire of Italian wrath should be smouldering, and waiting but for some slight fanning to leap into a devastating flame that should destroy all before it. The occasion arrived. Easter Monday being a grand *fête* day, a procession of the people of Palermo was formed to attend vespers at a neighboring church, when the French rulers, who gazed with suspicion upon all gatherings of the people, made this a pretext for searching for arms. To a brutal, licentious soldiery this supplied an opportunity for offering gross insults to the females, one of whom was a young married lady of great beauty and position. Her screams aroused the multitude; the spark was laid to the train; and, led by the lady's father and husband, the people rose in tumult. Arms were seized, and an indiscriminate slaughter of all the French in the city was the result.

This was but the alarm note for a general rising; and in town after town, upon that same day, massacres took place, the news flying swiftly, till not a place remained in the hands of the French but Messina. So hot was the people's rage, and so long a reign of cruelty had they to avenge, that mercy was forgotten; neither sex nor age was spared—French nationality being the password for death. Fortresses were attacked and carried, sharp and decisive engagements took place, and garrison after garrison was slaughtered—Messina only remaining at last to be taken to free the island from the foreign yoke. But here a pause ensued, many of the more substantial inhabitants fearing the power of the insurgents as opposed to that of the trained soldiers. But again a spark illuminated the fire. A citizen was seized by the French for appearing in public bearing arms. He resisted, aided by friends; but being overcome, they were borne off to prison; when, not content with the conquest, the viceroy sent to arrest the prisoners' wives. This injustice aroused the people, who flew to arms, attacked the French, and slaughtered above three thousand, driving the others into their fortresses, which they took after an obstinate defence, and put the defenders to the sword.

The insurrection, commencing as it did on the night of the Palermo procession, has since been known by the name of the Sicilian Vespers. The number of French put to the sword has been variously estimated at from twenty to thirty thousand; but, whatever the number, the slaughter was fierce and indiscriminate; and, in spite of after-efforts to recover the territory, Sicily was from that time lost to the reigning King of Naples, Charles of Anjou.

Habitations of Bees.

There are some insects and some animals that live in common like men, each one doing his part for the good of all. Bees are a curious example of this. They have a queen whom they all respect, and who does none of the work like the others, and when she is lost or dead they appoint another before they can settle themselves into quiet.

They show many other signs of their wisdom and government. They all join together to build cells for their honey, and they make these cells of wax. Each bee takes his own proper place and does his own work. Some gather honey and wax from the flowers, others stay and work inside the hive, while still others guard the door of it.

The cells which they build are all of one shape and one size, and the size is so managed that no room is left between the cells. There are not many shapes which will do this. If they were all round, there would be

room wasted; they therefore make them of six sides, leaving no room unoccupied.

They might have them of three sides, or might have made them square and thus have wasted no room, but then the shape would have been awkward, and this would not suit the busy bee, who, in this respect seems to teach us a very good lesson.

There are several species of bees distinguished by zoologists with the name of *solitary*, on account of the fact that they do not combine to carry on any joint operations. Among this class is the mason-bee so called, because it constructs a nest composed of sand and mortar. The nest of these bees is fixed to the walls of houses, and when completed have the appearance of irregular prominences, arising from dirt or clay thrown against a wall. They are not so remarkable as to attract attention, but when the outer coating is removed, their structure is found to be admirable. The interior part consists of an assemblage of different cells, each of which contains a white-worm, pretty similar to that produced by the *honey-bee*. Here they remain until they have undergone all their changes in shape and form.

The manner in which the female mason-bee, (who is the sole operator) builds her habitation, is very curious.

After choosing a part of the wall, she seeks for the proper material. The nest consists of a species of mortar, of which sand is the basis. She goes, therefore, to a bed of sand, and, with her teeth which are as large and strong as those of the honey-bee, she examines and brings together several grains; then from her mouth she throws out a sticky fluid, with which she moistens the first grain; to this she cements a second which she moistens in the same manner, and so on till she has formed a mass as large as the shot usually employed to kill hares. This mass she carries off in her teeth, and makes it the foundation of her first cell. In this way she works for five or six days, until the cells are all completed. All are similar, and before being covered their figure resembles that of a thimble. She never begins to make a second till the first is finished. Each cell is about an inch high and nearly half an inch in diameter.

Bees, in all their habits, seem wise and prudent. They have some idlers among them called *drones*; these they kill that they may not partake of the store of honey for which they have not worked.

Birds' Nests.

The remark is often made that the proper thing for mothers to do is to stay at home and employ themselves wholly with housekeeping, while their husbands go out into the world and labor for the means to provide a living for them and their children. Some curious little birds of South Africa seem to have taken the same notion into their droll little heads. The korwees build their nest in some convenient hole in the trunk of a tree, and when it is finished and the mother bird is ready to sit upon the eggs, her mate plasters up the entrance to the nest with clay, leaving only a small opening, large enough to admit his bill. Through this hole he passes food to the captive wife, and after the eggs are hatched to the young birds. The family in the nest thrive admirably under this treatment, but the poor little slave of a father gets so thin and worn that he can hardly fly, and, perhaps, falls dead if exposed to a sudden storm.

A charming contrast to the korwee's prosy and uncomfortable housekeeping is that of the honey-eaters of Australia. You know how delightful it is to swing in a hammock? Well, the honey-eaters enjoy it too; so they suspend a nice cosy cradle for their baby birds on some branch overhanging a stream of water. It is made of grass, and lined with wool or moss, and the ropes are twisted of cotton, bark, or some other tough fibre. The nest is quite deep, so that the young birds are in no danger of falling out. The mother packs herself snugly in the nest, and her attentive little brown husband perches on a branch near by, and chirps and chatters for her amusement, or feeds her with delicious worms, for the honey-eater lives upon insects and the pollen of flowers as well as upon honey.

It has been found that zinc is constantly present in appreciable quantities in the liver of the human subject, and of many of the lower animals. It also occurs in hen's eggs, in wheat and in barley.

Cats on Exhibition.

Curiosity is a controlling element in human nature, and yet when Charles Sprague made it the subject of a beautiful poem many years ago, he never anticipated even in his fruitful imagination what strange schemes it would suggest. He might have had a vision of dogs in pens, of goats, and of donkeys, but I do not think he ever conceived such a thing as a national cat show in London. And yet it is just that which has taken place at the Crystal Palace, Sydenham, (near London, England,) and it is the seventh of the annual series. It was not until the authorities of the Crystal Palace took the matter in hand that our feline friends were put to any practical purpose outside of their fidelity as household favorites and their dexterity as rat catchers. The present season attracted no less than 313 exhibitors. The Crystal Palace itself is familiar to Americans. The center transept, at once a beautiful promenade and a delightful resting place, was crowded by the throng of visitors who came to see the cats in cages down each side. Each cage contained a cushion for pussy, a little saucer filled with milk, etc., while the prize cats were distinguished by a blue flag hung from the top. Some idea of the enterprise of the authorities at the palace may be gathered from the fact that about one hundred and thirty prizes were offered for competition, from £5 to fifteen shillings, while marks of distinction, which are equally coveted, such as "Very highly commended," are also awarded. In certain classes, where there is a great competition and only, say three prizes, those cats which are highly commended have a good chance of carrying off the first prize at local shows or exhibitions, where their standing would be more completely recognized. The best tabby-cat received a silver coin. For this prize there was a general rivalry; there were thirty-six candidates, and as they were all first-class the decision of the judges was not made until after much discussion. The prize-men at last appeared as Master Schuckard's "Tommy Dodd," aged nine years, and valued at £100 (\$500); the winner of the second prize was also held at the same amount, while the value attached to others in the same class was never below £5. Miss Sherhouse's cat, "age unknown, possesses a tabular pedigree for six generations," and is valued by its owner at £10,000, but in face of these substantial arguments, Miss Sherhouse's favorite was not among the prizes, only receiving a high "commendation." Other of the candidates were magnificent creatures, graceful in their movements, their furs shining with gloss resembling the richest velvet. These cats were the best in the show, and were specially considered by the judges to be a superb class. The average weight of each was about sixteen and a half pounds. One of the prizes was for the "heaviest cat in the show," and this was won by a specimen weighing a few ounces over eighteen pounds. This gentleman was so overcome with joy at the honor he had won that he gave himself up to amusement the whole day, glad to engage in a game with the first youngster that came along. Few out of the 500 pussies showed bad tempers; the exceptions were among the black cats, which, for the most part, seemed discontented. Very different was the conduct of the long-haired Angora species, with their splendid coats white as snow, their pink eyes and fiery appearance forming one of the most interesting features. Another specimen had grievances thrust upon him, because, poor fellow, he had the misfortune to be born without fore legs. The gentleman gets about after the fashion of the kangaroo, and his manner of getting over the ground is certainly curious if not graceful. This unique spectacle is under distinguished auspices; as usual, a titled personage heads the list of patrons, which closes with the name of Charles Robert Darwin, the renowned philosopher and naturalist.

IN JAPAN every house must be decked with flowers on New Year's Day; and, to supply the great demand, the shops are full of dwarf peach trees, bearing double blossoms, and growing in large china vases and pots. The Japanese gardeners have a peculiar talent for raising dwarf plants and trees, and so general is the national fancy for such miniature products of vegetation, that the toy and fancy shops abound in very minute and delicate imitations of plants and flowers cut out of colored paper.

Chlorine.

BY JAS. P. DUFFY.

Chlorine, in its pure, uncombined state, is a gas of a yellow-greenish color. It has an exceedingly strong, and to some persons offensive smell. If inhaled, it produces asphyxia, and acts violently on the animal membranes in the throat and lungs. It is much denser than air, one volume of chlorine being equal to two and a half volumes of air in weight. It may, therefore, be readily poured from one vessel to another. Its combinations are very numerous; the most important being chloride of sodium (the common table salt), and chloride of lime, which is so extensively used for bleaching purposes, and as a disinfectant.

The chief source of chlorine, for commercial and other purposes, is common salt. This is decomposed by means of sulphuric acid and oxide of manganese, when the sodium becomes oxidized, and combines with the sulphuric acid to form sulphate of soda; and the chlorine being thus set free, escapes in the form of a gas, which is collected in bottles for use. Chlorine is frequently required for use in the laboratory. To become acquainted with the properties of chlorine, the student may try the following experiment:

Suspend a piece of cloth or paper, dyed with any vegetable color, and in a moist state, or a flower previously drenched with water, in a jar of chlorine. The color will be speedily discharged, owing to the bleaching powers of the gas. Chlorine, as has already been remarked, is largely employed for the purpose of bleaching, and in some departments of calico-printing for discharging colors. It is used in the form of chloride of lime, which is prepared by passing gaseous chloride over freshly salted lime.

Experiment: Make a strong solution of indigo in cold water, and pour this into a jar of chlorine gas. The chlorine will be rapidly absorbed, and the colored liquid bleached.

Water or moisture is essential to the bleaching powers of chlorine; hence the dry gas does not bleach vegetable colors.

Chlorine has a limited power of supporting combustion. It has also a great attraction for some substances as may be seen by the following

Experiment: Introduce some warm antimony in a state of fine powder into a jar of chlorine. It will immediately catch fire and produce chloride of antimony.

Hydrochloric acid, in its pure state, is a gas composed of one equivalent of chlorine united with one of hydrogen. In commerce and in the laboratory this gas is employed as a liquid acid, being in combination with water.

Chlorine combines with oxygen to produce various compounds. Of these chloric acid is the most important, as it gives rise to the chlorates, some of which are largely employed for the manufacture of lucifer matches, etc.

A compound acid is produced by adding together two parts, in volume, of hydrochloric acid, with one of nitric acid, both in as high a degree of concentration as possible. The mixture is called *aqua regia*, and is much used by metallurgists for the solution of gold, platinum and other metals.

Gustave Dore's Studio.

There is nothing in the appearance of Gustave Dore's painting-room in Paris that is particularly striking. One might have supposed that a man with such an exuberance of imagination as Dore possesses would have had a painting-room full of old cabinets, tapestry, china, armor, and the like. Nothing of the kind, however, is to be seen. There is a deal table on which tubes of oil color are thrown in disorder, a couple of cheap chairs, three or four easels of his own contrivance, a wash basin and looking-glass placed behind a faded green curtain at one corner of the room, a collection of claret bottles in a basket near the door, and a grinning skull on a bracket over the fire-place. He has a favorite poodle which is closely shaven within two inches of the top of his tail to its shoulders, and down the legs within three inches of the feet. This dog occupies one of the deal chairs, and "assists" Gustave in his work; that is if the great artist drops his maulstick or a brush, Bijou (for that's the dog's name) picks it up.

**SPORT IN THE FAR WEST,
OR;
Duck Shooting on the Minnesota Lakes.**

BY PARKER GILLMORE.

course, in the intermediate portion of country between Minnesota and the Gulf of Mexico, during the seasons of migration, splendid day's shooting can be obtained; but the stay of the bird is so short that it might not compensate for a special visit. Where thousands are to be seen to-day, not a dozen will be



WILD DUCK ON THE FEEDING GROUND.

In June, July and August the wild rice fields of the numerous labyrinths of lakes in Minnesota and the Northwest Territory perfectly swarm with wild fowl, while in December and January they will be found equally numerous on the large bayous and lagoons that surround the mouth of the Mississippi. Of

met to-morrow; but if you should happen in the spring and autumn to be in either of the States of Illinois, Iowa or Indiana, when the frost and ice are breaking up in the spring, or when winter makes its first appearance, you may with safety calculate on having some of the finest sport.

A year or so since, when in Illinois, in November, a sudden change took place in the weather, and although the morning was ushered in mild and warm, by noon it was snowing, with a gale of wind blowing from the north. From experience I knew that such a day was not to be wasted over the fire. I got on the shooting ground with a very large supply of ammunition, and in two or three hours I had to cease, as my stock was exhausted. My stand was in a field of indian corn that had been gathered into shocks, from the back of one of which I took shelter from the blast as well as for concealment.—Never shall I forget the scene. The ducks came in thousands, all flying before the wind, and if a dozen guns had been there instead of one, abundant work would have been found for all.

In the spring of 1866, when in Iowa, the first day of thaw, I went for a stroll, scarcely expecting to find game; but when I got on the prairie land I was perfectly astonished at the clouds of wild fowl arriving, some of the ponds being so densely covered with duck that the surface could scarcely be seen. These birds were all coming from the south, where they had passed the winter. If any of the readers of the *GROWING WORLD* intend to go in for work, and do not object to roughing it, I should most decidedly say that the wild fowl shooting is good enough to justify a visit. But let him not be induced to keep in the vicinity of settlements; rather let him and his attendants commence housekeeping on the margin of one of the northern Minnesota lakes; if in summer (remember one that produces an abundance of wild rice); but if the reverse season should be selected, the southern lagoons of the Mississippi will afford him abundant sport.

When living on the upper portion of Lake Concha-chin, Simcoe district, from the beauty of an afternoon and the coolness of the weather, I was induced to shoulder my gun and start across the country to Lake St. John, with the hope of killing some ducks to add to the fare of our already sumptuous table. I had never visited this place before, and as I left the clearing the last words of H— were, "take care you do not get lost." With an amount of confidence, "usually denoting ignorance," I responded that I was too old to be guilty of such a green proceeding. With little trouble I found my destination. Game was abundant and tame, they being overcome with that languor which makes them perfectly indifferent, and which is so frequently the precursor of bad weather. In a little time my bag was heavy, and I determined to retrace my steps; but for my life, I could not tell in which direction my route lay. To be sure, pooh, pooh! what nonsense! The whole thing appeared too absurd and ridiculous. I shall cross my own path in a few minutes—only a few steps farther! I am certainly close now! and thus arguing and consoling, I proceeded. By degrees it began to dawn upon me, though much against my inclination, that I was "certain sure out of my reckoning." The more convinced I became of the uncertainty of my position, the more I became excited. At first I walked faster, talked to myself, and tried, though I fear very indifferently, to treat the whole affair as an admirable joke. But soon my face became elongated, and a very gloomy expression usurped the place of my previous smile. For a change I shouted, and at last becoming fairly desperate I broke into a headlong run—the pace was too fast to keep up; fairly blown, wearied and exhausted, I sat down on the trunk of a fallen tree. The depression I felt will never be forgotten. The terrible loneliness, the perfect solitude and monotony, and the mosquitoes, which previously I had scarcely noticed, now put in a claim for attention. Night was rapidly approaching. Distant rumbling of thunder portended a coming storm, reminding me that a stormy night was at hand.

I soon found a prostrate monarch of the forest, under whose side I expected to find comparative shelter. In a short space I had gathered sufficient *debris* and inflammable matter to make a fire, determin-

ing to sacrifice one of my ducks to the implacable tormentor, hunger. I had but one match. With the utmost care I undertook the trying ordeal of squeezing myself into a corner, sheltering my hands with my cap, and sacrificing a portion of the last letter of my lady-love for tinder. Success rewarded me, and soon the surroundings were brought out in deep relief by the brilliant glow, reminding me of the deep contrast of light and shadow in one of the much admired pictures by Rembrandt. The rain was not long delayed, and after a few premonitory drops came down as if the flood-gates of heaven had been opened, accompanied by the loudest thunder and most dazzling lightning. There is nothing that more powerfully impresses man with the omnipotent power of the Creator, or with his own utter insignificance, than being placed alone, unprotected from the warring elements, listening to the dismemberment of limbs from the parent tree-trunks by the fury of the blast, or the scathing power of the electric fluid. All my efforts to keep a fire were futile—sleep was out of the question. No sick man or storm-tossed mariner ever more ardently longed for break of day. The night appeared endless, and doubts of whether the sun had not been delayed in his course, intruded themselves. At last, however, faint lines of light glimmered in the East, foretelling the departure of darkness, and with greater satisfaction than I ever previously experienced, I rose from my wet and uncomfortable resting place. To seek my lost route was my first endeavor, and for more than an hour I wandered without success. At last, when almost yielding to despair, I struck the margin of the lake, I had been shooting on the evening before; and what a beautiful, enthralling scene lay before me! The placid water only rippled where the wild duck sported, or the voracious fish pursued to the surface their destined prey; while the shadow of each tree that grew near the margin was so distinctly reflected that the minutest limb or twig could be traced with perfect precision. I stood entranced, and so great was my admiration that nothing could have induced me to disturb the harmony of the picture by destroying the life, or disturbing the retreat of the beautiful creatures which formed its prominent features. To the left were several deer and fawns, knee deep, feeding upon the tender, succulent leaves of the water lily, the youngsters occasionally chasing one another in sport, and unknowingly practicing and developing those muscles which Nature intends to be their protection in the hour of danger; their beautiful graceful mothers frequently raising their eyes from their morning repast with maternal solicitude for their progenies' safety. What sportsman could witness such a scene without feelings of the greatest pleasure? Long I gazed with feelings of rapture, congratulating myself in having at last discovered a hunter's elysium. Uncertainty in reference to my position had vanished, as without trouble, by following the margin of the water, I could find my back track. At last hunger told me it was time to think of home and breakfast. An hour after found me in my bed-room undergoing the luxury of a good wash, preparatory to an ample meal. My friend, who was rejoiced to see me, having dreaded the inconvenience of hunting me up, listened with great pleasure to my glowing, and perhaps, unintentionally, exaggerated description of all I had seen and endured. Game is still abundant near the region where my night adventures took place; but like every locality, the hunter will have to proceed a little farther beyond the bounds of civilization; for as certain as the red man vanishes before the stream of emigration, or the morning mists before the gladdening rays of the rising sun, game flies from the sound of the squatter's ax or the sharp report of the deadly rifle.

While sojourning West, I made the acquaintance of a good-hearted, kind gentleman and thorough sportsman. On the breaking up of winter in the spring of 1868, in fact, the morning after a decided thaw had set in, he arrived at my house at an early hour, and invited me to accompany him on the prairie to kill wild duck. For some time previously all the water that was stagnant or had but slight current had been frozen, and there being, in consequence, no feeding ground for the broad bills, they had taken their departure for more hospitable regions. My want of success a few days before caused me to doubt if better results could be obtained on this occasion, but being aware that H— was better posted on these matters than any man in the vicinity, I should

dered my ten-bore, straddled my Indian pony and started for what he considered the most appropriate place for doing havoc. On reaching the confines of the prairie we found that mallard duck had come in, and in myriads. In no direction could we gaze without seeing flights in those strange mathematical figures which they always assume when on the wing.

"Now o'er our heads compact they fly,
See, as we speak, careering high;
A flock of wild ducks cloud the air,
In wedge-like shape triangular."

As soon as we were at our stands, we divested ourselves of shot-pouches and powder-horns, hanging them on the bushes that we might the easier use them when required—for, once the game commences to arrive every moment is of value. Before we had been stationary many minutes a few stragglers made their appearance in our neighborhood, the advance guard, doubtless, of the main body; some old and experienced veterans, I should think, are generally chosen for this duty, as these forerunners are wary in the extreme, and seldom or never come within earshot. These birds, so far, had only flown past, and as night approached their numbers increased, and we being probably less conspicuous from decreasing light, the open water at our side was chosen for their resting-place. Down they would come on the water, almost imperiling our heads, with the rustling sound of the eagle in the act of swooping upon his prey. As soon as the birds struck the water they would commence bathing themselves, flapping their bodies with their wings, diving with short plunges, and cutting so many capers that one might imagine them stark, staving mad. The fact, however, is that all this apparent eccentricity is caused by the necessity the ducks feel of cleaning themselves of the insects about their plumage, as well as the pleasure they experience in finding themselves in a milder climate, with abundance of food around them, after enduring a hard journey from the North, protracted possibly through a day and night.

On arrival, therefore, they wash themselves and arrange their dress before commencing their meal. But, as the night approached, some strangers are mingled with the throng. The dusky duck, the bald-pate, the pin-tail, the blue and green winged teal, shoot past like arrows from a bow, the latter making, with the rapid motion of their wings, a sound not unlike an ungreased wheel or hinge. When the travellers are satisfied with the neighborhood, they dash down upon the water, causing it to fly in spray for yards around, while the first arrivals welcome the new-comers with innumerable quacks. The report of a gun then will scarcely alarm them, and, if they should rise, in a moment they will resettle, doubtlessly feeling security in their numbers.

Tarry a little longer, friend; be not impatient—don't you hear that strange voice? The geese are coming—ay, and brant too—can't you hear their noisy chattering? Move not an inch; these fellows have two eyes, equal in excellence to the whole hundred of Argues placed together. Soon a dark line is seen against the sky advancing directly to us. Honk! honk! honk! comes from its different sections, doubtlessly inquiries from the leader as to the propriety of a halt. Keep close—stir not, nor think of shooting, till they are over you—then fire. Again and again we loaded and shot, till our barrels got agreeably warm. Old Nep, my retriever, soon had the ground around our feet thickly strewn with the slain, and when an unfortunate duck, less severely peppered than others, or only broken-winged, would attempt to hobble off, Master Nep would give him a pinch about the regions of the cranium that immediately reduced the most obstreperous to submission. By 4 P. M. our powder-flasks commenced to show signs of giving out, and with a sickly, hollow rattle proclaimed that the remaining charges were few. To prolong the sport, we reduced our charges; but still the end was drawing near, and could only be delayed a few minutes, for with regret though the snow was now falling fast and the weather anything but enjoyable, we were brought to a halt. On collecting the spoil we had eighty-four ducks and forty-two geese. It took time and trouble to satisfactorily and securely sling our booty; and if any of our friends could have seen our noble selves and nags strung around with the fruits of our labor, they could not have suppressed a smile. Our last view of the field was of broad bills, in ever-increas-

ing regiments, rushing on to the devoted crops to feed, or diving, bathing and splashing in the water.

The following lines on roast duck may not be inappropriate here:

"A duck has been immortalized by Bryant,
A wild one, too:
Sweetly he hymned the creature lithe and buoyant,
Cleaving the blue.
But whoso says the duck through ether flying
Seen by the bard
Equals the canvas-back before me lying,
Tells a canard.

Done to a turn, the flesh a dark carnation,
The gravy red,
Four slices from the breast, on such a ration
Gods might have fed.
Bryant go to, to think that thy rare ghost duck
Traced 'gainst the sky,
Could e'er at all compare with this rare roast duck,
Is all in my eye."

Malay Customs.

I was told, writes a traveler in Borneo, that it is indispensably necessary that a young man should procure a skull before he gets married. On my urging that the custom would be more honored in the breach than in the observance, they replied that it was established from time immemorial, and could not be dispensed with. Subsequently, however, it was allowed that heads were very difficult to obtain now, and a young man might sometimes get married by giving presents to his lady-love's parents. At all times they denied warmly ever obtaining any heads but their enemies', adding that they were bad people, and deserved to die.

I asked a young unmarried man whether he would be obliged to get a head before he could obtain a wife. He replied, "Yes." "When could he get one?" "Soon." "Where would he go to get one?" "To the Sarebus River." I mention these particulars in detail, as I think, had their practice extended to taking the head of any defenseless traveler, or any Malay surprised in his dwelling or boat, I should have wormed the secret out of them.

The men marry but one wife, and that not until they have attained the age of seventeen or eighteen. Their wedding ceremony is curious, and is performed by the bride and bridegroom being brought in procession along the large room, where a brace of fowls is placed over the bridegroom's neck, which he whirls seven times around his head. The fowls are then killed and their blood sprinkled on the foreheads of the pair, which done, they are cooked and eaten by the new married couple alone, whilst the rest feast and drink during the whole night.

Maryland Ponies.

The long, narrow peninsula known as Synnepuxent Beach, on the Atlantic, and separated from the eastern shore of Maryland by a bold bay, terminates at the Asateague Inlet, and Chincoteague Island is just south of this inlet, and off the Maryland frontier, and separated from the eastern shore of Virginia by a beautiful bay seven miles wide, of the same name. The population is about 2000 people, and the island is seven miles long and about one mile wide. All along the Atlantic coast south, clear to the capes, are numerous islands, formed by inlets from the ocean, with numberless inland bays. These are inhabited by people engaged in oystering and fishing and the raising of Chincoteague ponies. There are large droves of them roaming about, making their own living on the vast marshes along the coast. In the Summer time they are fat, but in the Winter theirs is truly a precarious existence. Small in size, with delicate limbs, and having great powers of endurance, they are noted for their beauty and high mettle, though when tamed and broken they become very gentle. They are driven into pens in August, branded, and the saleable ones secured and broken; they command from \$50 to \$100. In Winter many die of starvation, and they have no other food than marsh grass, which they paw out from under the snow. Some persons here own hundreds of them. Tradition says these ponies are descendants of a vessel load of horses that was shipwrecked on this coast in the seventeenth century on their way to Jamestown, which was then being settled.

A Big Ship Sent Over Niagara Falls.

Capt. Gilbert Pratt, a veteran mariner now living in Belleville, Ont., whose period of service on the lakes dates back nearly half a century, recalls an incident which, though it has been almost forgotten, attracted considerable attention in its day. Vessel owners were then more conscientious than now. They were not inclined to risk the lives of passengers and crew in unseaworthy crafts.

The owner of the old schooner *Michigan*—then the largest vessel on the lakes—hit upon a novel expedient for disposing of her. The vessel had become old and rotten, and was no longer serviceable. Instead of loading her and sending her out late in the season heavily insured to be wrecked, he chose a more harmless plan, but one not less profitable to himself. He induced the proprietors of the hotels at Niagara Falls to buy the vessel and send her over the falls. This was about the year 1830. The proposition was eagerly accepted by the hotel proprietors, who saw in it a capital advertising scheme, and one which would be certain to pay them well. The affair was widely published in the newspapers and was the talk of the surrounding country for weeks and weeks. They did not count amiss when they judged what an excited public curiosity would do. For several days previous to the great event the stages and canal boats were crowded. People flocked thither from all parts of the country to witness the novel spectacle of the largest vessel on the lake going over the falls. The hotel keepers reaped a rich harvest. So great a crowd had never before been seen at that famous resort.

On the appointed day the *Michigan* was towed out into the rapids in the presence of a vast number of people who lined the banks or visited the scene upon the numerous excursion boats which were called into requisition. The task of towing the vessel into the current was intrusted to a Capt. Rough, with a crew of half a dozen oarsmen selected by himself. This was a rather hazardous enterprise. Capt. Pratt, who was himself one of the crew, says his heart almost failed him when they set out, though he had gladly volunteered for the service.

There had been placed on the schooner several animals, in accordance with the programme, which had been widely advertised. These consisted of a buffalo, three bears, two foxes, a raccoon, a cat and some geese. At her bowsprit was the American Ensign and at her stern the English Jack, the Canadian hotel-keepers having joined in the enterprise. There were also some effigies displayed on board to give the appearance of a crew, and to make more real the scene of a vessel with all on board making the terrific plunge. Just before the tow-line was cut the animals on board were turned loose. Just as the vessel entered the rapids two of the bears plunged overboard and actually succeeded in swimming ashore. The third one climbed the mast as if to get a better view of the scene.

All the animals seemed greatly frightened and ran from one end of the deck to the other, much the same as a human crew might have done under similar circumstances, in an agony of despair. The vessel swept grandly down the rapids, plunging over the first fall, shipping a little water, righting herself and moving on in fine style. In going over the second rapid the mast went by the board and the bear with it, and neither was again seen. She swung around and presented her broadside to the foaming waters. She had evidently struck a rock and was stationary. Here it was thought her career was ended and the affair was over. But she stopped only a moment. The force of the waters swung her around and she moved on, stern foremost. On the third rapid she bilged, but carried her hull apparently whole straight to the Horse-shoe fall, over which she plunged stern foremost to the foaming abyss below. She was smashed into a thousand fragments. None of the beasts on board were ever heard of more; but the geese turned up all right and were soon seen on the bank below, quietly oiling their feathers, as if there had not been much of a shower after all. One of the effigies was also found uninjured, throwing his arms about and knocking his knees together in the eddies, but all the others had disappeared. The scene was a most thrilling one. The great crowd of spectators watched the progress of the vessel with breathless interest, and gave a great cheer as she made the final plunge.

REASON gains all men's compelling none.

The Boy Astronomer.

The first transit of Venus ever seen by a human eye was predicted by a boy, and was observed by that boy just as he reached the age of manhood. His name was Jeremiah Horrox. We have a somewhat wonderful story to tell you about this boy.

He lived in an obscure village near Liverpool, England. He was a lover of books of science, and before he reached the age of eighteen he had mastered the astronomical knowledge of the day. He studied the problems of Kepler, and he made the discovery that the tables of Kepler indicated the near approach of the period of the transit of Venus across the sun's centre. This was about the year 1635.

Often on midsummer nights, the boy Horrox might have been seen in the fields watching the planet Venus. The desire sprang up within him to see the transit of the beautiful planet across the disc of the sun, for it was a sight that no eye had ever seen, and one that would tend to solve some of the greatest problems ever presented to the mind of an astronomer. So the boy began to examine the astronomical tables of Kepler, and by their aid endeavored to demonstrate at what time the next transit would occur. He found an error in the tables, and then he, being the first of all astronomers to make the precise calculation, discovered the exact date when the next transit would take place.

He told his secret to one intimate friend, a boy who, like himself, loved science. The young astronomer then awaited the event which he had predicted for a number of years, never seeing the loved planet in the shaded evening sky without dreaming of the day when the transit should fulfil the beautiful vision he carried continually in his mind.

The memorable year came at last—1639. The predicted day of the transit came, too, at the end of the year. It was Sunday. It found Horrox, the boy astronomer, now just past twenty years of age, intently watching a sheet of paper in a private room, on which lay the sun's reflected image. Over this reflection of the sun's disc on the paper, he expected, moment by moment, to see the planet pass like a moving spot or a shadow.

Suddenly the church bells rang. He was a very religious youth, and was accustomed to heed the church bells as a call from Heaven. The paper still was spotless; no shadow broke the outer edge of the sun's luminous circle.

Still the church bells rang. Should he go? A cloud might hide the sun before his return, and the expected disclosure be lost for a century.

But Horrox said to himself: "I must not neglect the worship of the Creator, to see the wonderful things the Creator has made."

So he left the reflected image of the sun on the paper, and went to the sanctuary.

When he returned from the service, he hurried to the room. The sun was still shining, and there, like a shadow on the bright circle on the paper, was the only image of the planet Venus. It crept slowly along the bright centre, like the finger of the Invisible. Then the boy astronomer knew that the great problems of astronomy were correct, and the thought filled his pure heart with religious joy.

Horrox died at the age of twenty-two. Nearly one hundred and thirty years afterward, Venus was again seen crossing the sun. The whole astronomical world was then interested in the event, and expeditions of observation were fitted out by the principal European Governments. It was observed in this country by David Rittenhouse, who fainted when he saw the vision.

How quickly one generation of men follows another to the grave! We come like ocean waves to the shore, and scarcely strike the strand before we roll back into the forgetfulness whence we came. "There is a skeleton in every house." Aye, in some many. We can stand upon the corner of any street, and, looking back, we shall see that all the houses have changed occupants in a few years. The old men have gone, and a generation that knew them not has taken their places. Yes! while we look, we ourselves grow old, and pass on to join the great caravan whose tents are almost in sight on the other side. In youth, the other world seems a great way off, but later we feel and realize that it is closer at hand; and what is better, Nature does the preparatory work for passing into it, so that easily we grow into it—are born into it.

Worldly Prospects of Young Men.

BY G. W.

When young men arrive at an age which makes it almost imperative that they should seek some mode of supporting themselves, they are too apt to rely more on the influence of their relatives and friends than upon their own exertions. Many become discouraged at the slightest rebuff, and foolishly yield to despondency, when their next effort might meet with the most unexpected success. Some bitterly complain of the chances of prosperity without capital, and consider it would be useless to make any exertions without that assistance, while others are so choice and fastidious in their taste, that it is almost impossible to please them. These views of life and business are all wrong, and emanate more from an idle disposition and a species of false modesty than from any actual cause. Instead of harboring such thoughts and yielding to their gloomy influence, how much better it would be to form a resolution to succeed, and to carry it out by your actions and exertions. Energy, perseverance and a strict attention to business will accomplish almost anything; and success and prosperity are as certain to follow as they are practised.

There is not a community but what has an example of this kind; and some of the wealthiest men in our nation started penniless and unknown. It was by their industry and perseverance alone that they were able to accumulate their immense wealth. Girard's life is replete with reverses, but they only stimulated him to renewed efforts, and at his death he was worth millions. Astor had nothing but his exertions and indomitable will to depend upon, and they proved his best capital. A. T. Stewart is another example of what perseverance will do, beginning life in a small and unostentatious manner. In a word, the history of nearly all the millionaires in the United States may be given in, "Industry, Economy and Perseverance."

The sons of rich men who begin life with the capital which so many poor young men covet, frequently die beggars. It would probably not be going too far to say that a large majority of such monied individuals either fail outright, or gradually eat up the capital with which they commenced their career. And the reason is plain. Brought up in expensive habits, they spend entirely too much. Educated with high notions of personal importance, they will not, as they phrase it, "stoop" to hard work. Is it astonishing, therefore, that they are passed in the race of life by others of less capital but more energy, thrift and industry? For these virtues, after all, are worth more than money. In fact, they make money. Nay, after it is made they enable the possessor to keep it, which most rich men declare to be more difficult than the making.

He who enlarges his expenses as fast as his earnings increase must always be poor, no matter what his abilities. And content may be had on comparatively little. For it is not in luxurious living that men find real happiness.

Minuteness of Atoms.

Goldbeaters, by hammering, can reduce gold to leaves so thin that 282,000 must be laid upon each other to produce the thickness of an inch: yet those leaves are perfect, or without holes, so that one of them laid upon any surface, as in gilding, gives the appearance of solid gold. They are so thin, that if formed into a book, 1,500 would only occupy the space of a single leaf of common paper; and an octavo volume of an inch thick would have as many pages as the books of a well stocked ordinary library of 1,500 volumes, with four hundred pages in each. Still thinner than this is the coating of gold on the silver wire of what is called gold lace; and we are not sure that such coating is of only one atom thick. Platinum and silver can be drawn into wire much finer than human hair. A grain of blue vitriol or carmine will tinge a gallon of water, so that in every drop the color may be perceived. In the milt of a cod-fish, or in the water in which certain vegetables have been infused, the microscope discovers animalcules of which many thousand together do not equal in bulk a grain of sand; and yet nature, with a singular prodigality, has supplied many of these with organs as complex as those of a whale or elephant, and their bodies consist of the same substances, or ultimate atoms, as that of man himself. In a single pound of such mat-

ter there are more living creatures than of human beings on the face of this globe.

What a scene has the microscope opened to the admiration of the philosophic inquirer! Water, mercury, sulphur or, in general, any substance when sufficiently heated, rises as vapor or gas; that is, it is reduced to the æriform state.

Great heat, therefore, would cause the whole of the material universe to disappear, and the most solid bodies to become as invisible and impalpable as the air we breathe.

A well known naturalist tells of an insect seen with a microscope of which seventy million would only equal a mite. Insects of various kind may be seen in the cavities of a common grain of sand. Mold is a forest of beautiful trees, with branches, leaves, flowers and fruit.

Parrots.

BY CAPT. CARNES.

Parrots often live to a good old age even in captivity. To capture them, the South American Indians fire arrows at them, the points of which are blunted with wrappings of cotton, or they light a fire of strong smelling weeds under their perches, when they become partially suffocated and fall to the ground.

The cockatoos differ from other parrots by having a crest of elegant feathers on their head which they can raise or depress at pleasure. They are natives of the East Indies and Australia, and inhabit the damp and humid forests, from which they occasionally swoop out in flocks of hundreds and devastate the neighboring rice-fields.

Australia possesses the jet black species—the rarest kind of parrot.

The splendid feathering of the South American macaw makes it a beautiful ornament for parks and lordly gardens, but its frightful shrieking and cries detract from its popularity. When in proximity to this species the naturalist can have no eye for aught beside. The scarlet body, the red, yellow, blue and green of his wings, added to his long blue and scarlet tail makes him an object of the rarest beauty.

Then come the paroquets—small—and with very long tails and collar-like marks about the neck. They inhabit the Asiatic continent, and others are natives of Australia. Many are brilliantly feathered with mottled backs, and legs formed for running on the ground.

The ringed paroquet is supposed to have been the first bird of the parrot kind known to the ancient Greeks. It has a rapid and even flight, but remains much upon the ground feeding upon the seeds of grasses. Singularly enough, it is said that the parrot family can eat nux vomica, or strychnine, without evil effects, but is poisoned when it has tasted parsley, thereby illustrating the old proverb—"What is one's meat is another's poison."

In his free state the parrot lives upon nuts and seeds; when captive he becomes omnivorous like his master, and eats bread and meat, sugar and pastry, and alas, for his morals, or rather for the morals of the master that teaches him, he learns to become very fond of wine, which throws him into gay and festive spirits. In their wild state they start off at break of day with wild screams, in pursuit of breakfast, after which they flit back into the forest shades until just before sunset, when they again appear in quest of food. They are not all gifted alike in regard to speech; some species are stupid, others apt to learn—running parallel to children in school.

When we realize the wonderful fact of a bird's understanding, articulating and applying aptly the language of mankind, how can we do less than marvel at the wonderful creations of God, and strive to appreciate and love so beneficent a Friend, Guide and Creator.

HOPE.—Hope is the most priceless boon to nature given. Were it not for its influence many would be plunged in the gulf of dark despair that now tread the ways of honor and glory. The past has been but a scene of bitter disappointments and blighted hopes to many of us. The present is the daily witness of the wreck of all life's sweetest joys; but still hope shines like a star, and sheds its brilliant rays over the gloom, and pictures fair visions to be disclosed in the impetuous future. Without its influence life would be a desert deprived of every oasis.



IN THE TWILIGHT.

In the shadow of the twilight, trees are waving to and fro,
In a rhythmic measure, keeping time to thoughts of long ago.

Thoughts that swell like far-off music, thrilling me with subtle
pain,
Thoughts that Nature, in her musings, echoes in a sad refrain.

O beloved! do thy heart-strings quiver in this dreamy eve?
Can'st thou not, in all thy splendor, for the past one moment
grieve?

Hast thou grown than nature colder, and forgotten happy
days,
When with faith and hope we could not see the parting of our
ways?

Moist with dew, this vine its clustering arch of tangled fra-
grance rears.
Speaks it not of love and spring-time, sweeter through a mist
of tears?

And these mosses gray and clinging, fragments caught from
twilight's veil,
Tell they not of sorrows twining all our life with memories
pale?

Nay, forgive, forgive this doubting, in thine overbrimming
eyes,
Still I see that worldly living hath not made thee worldly
wise.

Was it right or was it wrong, thus to let our different spheres
Hold us severed, bound in misery through such weary length
of years?

For thy soul its fullest stature, could not reach except through
mine,
And my life so poor, defrauded, could not know its power
divine.

Let it pass—O, my beloved!—see, I stifle all my pride;
'Tis not yet too late to finish our short journey side by side.

There the dark-robed clouds are sweeping to the quiet sunlit
west.
Shall not thus our past all vanish in Eternity of Rest?

* * * * *

Here where we in childhood wandered, finding flowers for
every mood,
I behold one pure and saintly, starlike lighting all the wood.

And I pluck it, for no longer care and pain with us can dwell,
Love shall crown us living, dying, with its fadeless immortelle.

Seed Life.

No doubt tourists have often been imposed upon by those who pretend to have taken living grains or bulbs of tulips and lilies from the hands of mummies that have been buried over a thousand years. The fraud has been so many times detected that it has cast a grave suspicion on these cases where germination has been said to have taken place after this long burial. Yet it is beyond a question that some seeds can retain their vitality for a great length of time, and at length, when the favoring circumstance takes place, may develop luxuriantly.

Three acres of land covered with furze and trees, near the seat of Lord Palmerston, were once cleared up, when directly after a crop of lilies of the valley and violets appeared, completely covering the ground.

Persons on digging a well, have often found the earth brought up from a great depth and exposed to the action of light and warmth, suddenly become covered with vegetation, wholly unlike any that surrounded it. I have seen large tracts of land from which the pine trees had been cut down, covered afterwards with a thick growth of scrub oaks. Where the little acorns had kept themselves all those years when the pines were rustling over them nobody can exactly decide. If it was a small tract it might be easily explained; but how miles of such land can be so immediately seeded is rather curious.

The life principle in seeds can bear wonderful tossings and exposures without being destroyed. Plants are introduced into foreign soils by seeds that have borne an ocean voyage on their own hook, and have survived the buffeting of the waves. They embark upon the rivers which go down to the sea, and often make extended journeys. The fruit of the cocoanut and nuts of the mahogany tree have been cast ashore on the coasts of Norway, still "alive," and but little the worse for their travels. Truly one has well said: "Life is a property we do not understand. Yet life, however feeble and obscure, is always life, and between it and death there is a distance as great as existence and non-existence."

ETHEL.

American Caviare.

Caviare is an important article of commerce, prepared from the roes of large fish, chiefly the sturgeon, and is much used as an article of food during seasons of fast in Russia, Italy and other countries. Russia has hitherto monopolized its preparation and sale. From Astrakhan alone, 30,000 barrels have been exported in a single year. Some years ago, two Germans, living near Lake Erie, observing that the fishermen of the lake derived but little benefit from the numerous sturgeon abounding in its waters, made a contract by which they were enabled to get an abundant supply of that fish on very moderate terms. Then they put up a shanty on the shore of the lake, and went into the business of preparing caviare, and have been so successful that their product has acquired an extensive celebrity, having been pronounced fully equal to the Russian article. They not only send their caviare to all parts of the United States, but have exported large quantities to Europe.

The Earthworm.

The worm is admirably adapted by its structure for tunnelling in the earth, and its wonderful borings are often laid bare in the railway and other cuttings. When we consider the great pressure of earth, besides its solidity, through which these worms have to bore, it seems surprising that their delicate organisms should not be crushed. The body is made of a number of small rings, which are armed with short, stiff, harsh bristles, by means of which they pull themselves along. As the seamouse has brilliant hairs, and the Cape mole has lustrous fur, so the earthworm's cuticle has a shining iridescent lustre, the reason of which I am not in a position to explain. The nervous and vascular system of the earthworm is very complicated. The œsophagus, a wide membranous canal, is continued straight down for half an inch, and ends in a delicate bag or reservoir; and to this succeeds a muscular stomach or gizzard disposed in the form of a ring.—FRANK BUCKLAND.

Arsenic.

BY JAS. P. DUFFY.

The ores of this metal are very widely diffused in combination with other metals. It is a brittle solid, of a steel-gray color and metallic lustre, and is obtainable from any of its combinations by applying heat.

Arsenious acid is the most important combination of this metal, and is commonly known as white arsenic. It is astonishing that so deadly a poison should be extensively employed.

It has been stated on good authority, that the inhabitants of some parts of Germany are accustomed to eat arsenious acid, and that it has the effect of making them plump in body and sustains their power of ascending steep places, so far as the act of breathing is concerned. It has also been remarked that, so long as the habit is maintained, no inconvenience of any kind is produced; but if it be left off, then all the symptoms of arsenical poisoning present themselves.

We need feel surprise, not that cases of arsenical poisoning so rarely occur, but rather that they are not more frequent, when we take into account the character of the individuals with whom it is entrusted. As a sheep wash, and to steep wheat, it is often employed by farmers; and it is no uncommon thing in some parts of this country to find farmers, on market days, purchasing the article extensively for the purposes named.

Arsenic with copper forms a pigment largely used for the purpose of printing a rich green color on paper-hangings. Ladies' dresses have often their green tint heightened by means of Scheele's green, which contains arsenic; and persons employed in making such, and in the manufacture of wax and other artificial flowers, suffer seriously from the inhalation of arsenical powder thus used in their business. It is much to be regretted that the personal charms of the *belle* must be enhanced by her poorer sisters paying the cost with the sacrifice of their health, and possibly their lives.

Another extraordinary use of arsenic is that of a cosmetic. For this purpose a little of the white arsenic is put into the water in which the person is washing, and the face and hands bathed with the solution. The pores of the skin gradually absorb the poison, and the consequences of its use soon become apparent by symptoms of arsenical poisoning which supervene.

By the following method arsenic may be distinguished from other substances: Place a small portion on some red-hot coal, when, if arsenic be present it will volatilize, affording a smell exactly like that of onions.

A Royal Dinner.

Readers of Roman history have been astonished at the magnificent wastefulness of the suppers given by those who seemed to live to eat. But the kings of ancient Mexico rivalled, if they did not excel, in their prodigal feasts the repasts of the richest Roman epicure. Montezuma II. was encompassed by a cloud of attendants. Six hundred noblemen passed the day at his court, speaking always in low tones, and careful to make no noise within the limits of the palace. The king dined alone, and the number of dishes served for him at each meal are estimated at from three hundred to three thousand. Mr. H. H. Bancroft, in a work upon the civilized native races of the Pacific region, gives this description of the royal dinner:

The king took his meals alone, in one of the largest halls of the palace. If the weather was cold, a fire was kindled with a kind of charcoal made of the bark of trees, which emitted no smoke, but threw out a delicious perfume; and that his Majesty might suffer no inconvenience from the heat, a screen ornamented with gold, and carved with figures of the idols, was placed between his person and the fire.

He was seated upon a low, leather cushion, upon which were thrown various soft skins, and his table was of similar description, except that it was larger and rather higher, and was covered with white cotton cloths of the finest ware of Cholula, and many of the goblets were of gold and silver, or fashioned of beautiful shells.

He is said to have possessed a complete service of solid gold, but as it was considered below a king's dignity to use any thing at the table twice, Montezuma, with all his extravagance, was obliged to keep this costly dinner-set in the temple. The bill-of-fare comprised every-

thing edible of fish, flesh and fowl that could be produced in the empire, or imported from beyond it.

Relays of couriers were employed in bringing delicacies from afar, and as the royal table was every day supplied with fresh fish brought without the modern aids of ice and air-tight packing, from a sea-coast more than a hundred miles distant, by a road passing chiefly through a tropical climate, we may form some idea of the speed with which these couriers traveled.

There were cunning cooks among the Aztecs, and at these extravagant meals there was almost as much variety in the cooking as in the matter cooked. Sahagun gives a most formidable list of roast, stewed and boiled dishes of meat, fish and poultry, seasoned with many kinds of herbs, of which, however, the most frequently mentioned is chile. He further describes many kinds of bread, all bearing a more or less close resemblance to the modern Mexican tortilla, and all most tremendously named. Imagine, for instance, when one wished for a piece of bread, having to ask one's neighbor to be good enough to pass the totaquitlaxcallillaqnelpacholli; then there were tamales of all kinds, and many other curious messes, such as frog-spawn and stewed ants cooked with chile; but more loathsome to us than even such as these, and strangest of all the strange compounds that went to make up the royal carte, was one highly-savored, and probably savory-smelling dish, so exquisitely prepared that its principal ingredient was completely disguised, yet that ingredient was nothing else than human flesh.

The Shah's Strong Box.

The Shah of Persia's strong-box consists of a small room, twenty feet by fourteen, reached by a steep stair, and entered through a very small door. Here, spread upon carpets, lie jewels valued at \$35,090,000. Chief among them is the Kaianian crown, shaped like a flower pot, and topped by an uncut ruby as large as a hen's egg, and supposed to have come from Siam. Near the crown are two lamb-skin caps, adorned with splendid aigrettes of diamonds, and before them lie trays of pearl, ruby, and emerald necklaces, and hundreds of rings. Mr. Eastwick, who examined the whole, states that in addition to these there are gauntlets and belts covered with pearls and diamonds, and conspicuous among them the Kaianian belt, about a foot deep, weighing perhaps eighteen pounds, and one complete mass of pearls, diamonds, emeralds, and rubies. One or two scabbards of swords are said to be worth a quarter of a million each. There is also the finest turquoise in the world, three or four inches long, and without a flaw. There is also an emerald as big as a walnut, covered with the names of kings who have possessed it. The ancient Persians prized the emerald above all gems, and particularly those from Egypt. Their goblets decorated with these stones were copied by the Romans. The Shah also possesses a pearl worth \$300,000. But the most attractive of all the Persian stones is the turquoise, which is inlaid by the native lapidaries with designs and inscriptions with great effect and expertness.

Spanish Customs.

The greater number of the houses in Spain have no carpets, but just the clean boarded floors; neither have they fire-places, instead of which they are warmed by a "brasero" filled with smouldering ashes. When the stranger visits a Spanish house he must make no attempt to shut the doors, for to be alone with a lady with closed doors, would be considered indecorous; and it must also be remembered that Spanish ladies seldom either shake hands or take a gentleman's arm; but when the gentleman rises he must say, "*Beso los pies de usted, senora*" ("Lady, I kiss your feet"), to which the lady responds, "*Beso a usted la mano, caballero*" ("Sir, I kiss your hand.") The Spanish ladies are considered very beautiful, generally of a dark complexion, with charming black eyes; those of Andalusia are considered the greatest beauties. They seldom wear a bonnet, having a mantilla or lace shawl, which they have thrown over their heads. Their love-making is of the olden times. I remember, when passing through some of the towns, of seeing and hearing many cavaliers, with a capa or cloak thrown over their heads, like the troubadours of old, standing under their novia, or sweet-hearts' window, touching the guitar.

Slow But Sure.

It is stated by some authority that if the city of New York should remain uninhabited for ten years its streets would be lined with houses in ruins. The parts most beautifully and substantially built would not escape the general wreck. The agent that would bring about this work of destruction is one so insignificant that it would scarcely enter into the thought of the ordinary observer. It is only the roots and suckers of the growing trees, planted along the side walks, and which, if left unmolested, would unsettle the firmest foundations.

The power of growing vegetable life is often most wonderful. In an old German graveyard is the tomb of some member of a noble family, which was sealed up over a hundred years ago. Two massive sandstones were laid upon it, and across these another stone double their size. The stones were fastened together by massive iron clamps, and an inscription stated that, "This grave, bought for all time, must never be opened." But how vain are all human calculations! To man's view this grave seemed double-barred, and yet a most insignificant agent invaded it. The winds of heaven wafted to the spot a seed of birch. It fell in the interstices of the stones, and finding a favoring soil it germinated and flourished. No hand disturbed it on the neglected grave, so year by year it increased in size and strength. The inscription on the massive sandstone was nothing to the aspiring young birch tree. It raised slowly and steadily, a hair's breadth at a time, the moss-grown stones at its foot, turning them partially on their edges, entirely unloosing the iron clamps which fastened them. In all the calculations of the tomb-builders it had never occurred to them that such a tiny invader would ever disturb the sanctities of the grave.

Almost any one familiar with rough mountain scenery has met with large masses of rock, sometimes of many tons weight, which have been loosened by the roots of some tree and tumbled down the cliff. A little rootlet was first sent down into some tiny crevice of the rock, and had pushed its advantage little by little, until the giant rock had been cleft asunder as effectually as if by a blast of powder.

Let us never despise the power of the littles, when we see what giant work they may be able to perform.

The Bells of Limerick.

BY EMILY V. BATTEY.

The old bells that hung in the tower of the Limerick Cathedral were made by a young Italian after many years of patient toil. He was proud of his work, and when they were purchased by the prior of a neighboring convent near the Lake of Como, the artist invested the profits of the sale in a pretty villa on the margin of the lake, where he could hear their *Angelus* music wafted from the convent cliff across the waters at morning, noon, and night. Here he intended to pass his life; but this happiness was denied him. In one of those feudal broils which, whether civil or foreign, are the undying worm in a foreign land, he suffered the loss of his all; and when the storm passed, he found himself without home, family, friends, and fortune. The convent had been razed to the ground, and the *chef's-d'œuvre* of his handiwork, the tuneful chime whose music had charmed his listening ear for so many happy days of his past life, had been carried away to a foreign land. He became a wanderer. His hair grew white and his heart withered before he again found a resting-place. In all these years of bitter desolation, the memory of the music of his bells never left him: he heard it in the forest and in the crowded city, on the sea and by the banks of the quiet stream in the basin of the hills; he heard it by day; and when night came, and troubled sleep, it whispered to him soothingly of peace and happiness. One day he met a mariner from over the sea, who told him a story of a wondrous chime of bells he had heard in Ireland. An intuition told the artist that they were his bells. He journeyed and voyaged thither, sick and weary, and sailed up the Shannon. The ship came to anchor in the port near Limerick, and he took passage in a small boat for the purpose of reaching the city. Before him, the tall steeple of St. Mary's lifted its turreted head above the mist and smoke of the old town. He leaned back wearily, yet with a happy light beaming from his eyes. The angels were whispering to him that his bells were there. He prayed: "Oh, let them sound me a loving

welcome! Just one note of greeting, O bells! and my pilgrimage is done!"

It was a beautiful evening. The air was like that of his own Italy in the sweetest time of the year, the death of the spring. The bosom of the river was like a broad mirror, reflecting the patterns of bright gold that flecked the blue sky, the towers, and the streets of the old town in its clear depths. The lights of the city danced upon the wavelets that rippled from the boat as she glided along. Suddenly the stillness was broken. From St. Mary's tower there came a shower of silver sound, filling the air with music. The boatmen rested on their oars to listen. The old Italian crossed his arms and fixed his streaming eyes upon the tower. The sound of his bells bore to his heart all the sweet memories of his buried past: home, friends, kindred, all. At last he was happy—too happy to speak, too happy to breathe. When the rowers sought to arouse him, his face was upturned to the tower, but his eyes were closed. The poor stranger had breathed his last. His own *chef's-d'œuvre* had rung his "passing-bell."

How to Preserve Sea-Weeds.

The best season for making collections of sea-weeds, in their many varieties, is in September and October, as most of them are then in full bloom, and the autumnal storms throw them on shore in great perfection, and from deeper waters, where they grow in greater luxuriance. On this account they are large and more beautiful, while some of them are exceedingly delicate and minute in structure.

Always carry a basket in which to collect them, and at evening wash all that you have obtained in a shallow pan of cold fresh water, taking care to remove all foreign matter attached to their filaments. A hair-pin or large darning needle is a good thing to use for this purpose. If you can not possibly wash and cleanse at once all the specimens you have procured, shake them out on a large towel, and put them in a shady, airy spot, folding the towel over them.

Take some sheets of foolscap paper and slightly besmear them with pomade or lard, then place one of them at the bottom of your wash-bowl, and pour fresh water over it until the bowl is nearly full. It must be large enough to lay the paper down flatly, and not let it become bent or wrinkled. Now take a washed specimen from the other dish, and float it carefully upon the surface of the bowl, separating each filament from its neighbor with a camel's-hair brush until it lies spread out as it did in the sea. The longest branches must have plenty of paper to allow them to lie straight, and knobby excrescences or overlapping branches should be placed uppermost.

Then place a small weight upon the centre of the floating weed, and pick out each frond by itself. This part of the work requires a patient hand, and can not be performed in haste, as the plants are often very brittle, and break easily.

If the fronds are very abundant, some of the inferior ones can be clipped off with a pair of scissors, and as each portion is disentangled small weights must be placed to keep them in position. Small pebbles are excellent for this purpose. Each frond being arranged to suit you, draw off all the water in the bowl with a sponge, then slide out the oiled paper with care, and lay it upon some blotting-paper to remove the moisture; take away all the little weights, and cover the sea-weed with another sheet of oiled foolscap, first re-adjusting any branches which have slipped out of place. Put the whole under a heavy weight—a trunk or portmanteau will answer the purpose. But if you are going to collect a large number of specimens, it is better to procure two pieces of hard wood about ten by fifteen inches, and about three-quarters of an inch in thickness, with the edges beveled, and a leather strap attached to one of them, to go round both and fasten them tightly when the plants are put in to be pressed. When they are thoroughly dry the plants can be removed from the greased paper, and placed in a book made with guards between the leaves, attaching slightly the sea-weeds either with mucilage or strips of paper gummed on over the principal branches.

Against each you should write its name, both popular and botanical, and the coast from whence it was collected, also the date.

THE

HISTORY OF KEROSENE OIL.

BY JASPER T. JENNINGS.

Everything has its history. The floors and walls of our dwellings, the windows, the chairs, the table, and the quaint old time-piece on the mantel—could they but speak and tell of the passing events they have witnessed; of their first springing into existence in the great field of nature, and the parts they performed therein; of the circumstances that led men to invent the process of arranging their component parts in proper shape, etc., would unfold a world of history, amusing and instructive. Everything we see about us once had a natural existence in some form or other, before the hand of man ever touched it to give it its present shape. Man can change, and mix, and blend, and fashion, and cut, and shape, and put together, but the power of creation and destruction is Nature's own. Hence, the study of Natural History is a vast, grand, and sublime study; comprehending as it does, a portion of the history of every object the eye of man can behold.

The lamp that sets upon our desk or table has its history in connection with the manufacture of glass; the ingredients of which were drawn from Nature. The kerosene oil which burns within it, giving forth such a steady and brilliant light, also has a history of its own. Prepared mineral oil for illuminating purposes has been known but a few years. In its crude state, however, it has been known to exist from a very remote date. The ancient Egyptians used bitumen and petroleum for religious purposes, and in the process of embalment. A bitumen spring in the Ionian Islands is described by Herodotus, and, doubtless, this is the place from which the Egyptians obtained their supply. The pitch and asphaltic mortar used in the construction of the walls of Babylon and the cities of Mesopotamia was a preparation of petroleum; much of which was taken from the oil springs of Is. The more modern "Greek fire" was probably a compound of the same material.

The high, rocky peninsula of Baku, on the western shore of the Caspian Sea, is one of the most natural rock-oil regions in the world. It is a sterile, barren region, without a stream or drop of pure water; without a tree, or scarcely a stray sign of verdure; a wild waste of desolation. The soil is, as it were, completely soaked with naphtha; and at one place the sides of a mountain stream with thick black oil. The sickening coal gas rises and fills the atmosphere on every side. Numerous little volcanoes are in a constant state of action, discharging volumes of mud and oil. Occasionally, on festive days, the people of the vicinity assemble near a little bay of the Caspian, and pour many tuns of the crude oil upon the surface of the water. In the darkness of the evening it is set on fire. The vivid flames spread almost instantly, and leap far upward, until they seem to reach the very clouds; while the whole region is illuminated to a degree approaching that of noonday. But by far the greatest exhibitions of this kind are those produced by the hand of Nature herself. In 1817, a huge column of flame, 1,800 feet in diameter, and over a mile in circuit, burst forth from the ground in this region, and at once the earth, the sky, and heavens appeared wrapped in one grand blaze of light. Great jets of boiling brine were hurled seething and hissing aloft, while the ejected rocks came tumbling down upon the surface with the noise of thunder, and the very earth shook beneath the shock of the mighty convulsion. For eighteen days the terrible scene continued; and in that time a mound was raised no less than nine hundred feet in height.

In ancient times this spot was known and worshipped as the land of sacred fire; and in the time of Zoroaster its naphtha was carried to the remotest bounds of Asia, to make the sacred Parseean fire. At times, on a pale moonlight night, after a warm autumnal shower has drenched the soil, ten thousand flickering, ghostly lights appear in every direction, wherever there is a fissure in the white sulphurous soil. If the night be dark, immense volumes of vapory flame flash and roll along the mountains; or often like the Aurora Borealis of the northern regions; and a lake in the vicinity is covered with a cloud of pale dancing light, which, like the rest, scarcely ever burns with a sensible heat. The traveller, Rottiers, who visited the spot many years ago, supposed the phenomenon to be electric. It is probable that it is caused by the silent action of mineral substances beneath the soil, and that the naphtha and petroleum which is so abundant may be numbered among the chief causes. No wonder the ignorant natives, in the fullness of their superstition, two thousand years ago, gazed upon the scene with fear and trembling, and worshipped the fire as holy and sacred.

The Himalayan valley contains many oil wells; and the oil works of India forms no small article of value. The first successful oil wells of Italy were sunk at Parma and Medina in 1640. Since that time wells have been sunk in France, England, Neuchâtel, Bavaria, etc. In the southwestern part of the island of Trinidad there is a lake of pitch, or petroleum, half a mile in length by an eighth of a mile in breadth. The surface is generally hard enough to be readily traveled over; though there are places where the liquid pitch oozes forth, and where a person would mire as readily as they would in a swamp. There are several deep fissures in different places, filled with as clear water as ever bubbled forth from a mountain spring. The whole is surrounded by beautiful groves of trees, graceful bamboos, trailing vines, and a profusion of sweet scented flowers.

The known history of American petroleum commences about a hundred and twenty-five years ago; when the Seneca Indians informed the whites of its existence on Oil creek, a tributary to the Alleghany river, in Venango county, Pennsylvania. It was early known as "Seneca oil," and "Genesee oil;" and being used as a medicine, it often sold for a high price among both the whites and Indians. Observing that the water in many places tasted brackish, people began to sink wells for salt. Brine and oil were the result. In 1819 a well was sunk in the valley of the Little Muskingum, in Ohio, which spouted forth vast quantities of petroleum, with terrific explosions of gas. For days together the flow of brine was interrupted by it. Its existence in connection with the brine was declared a damage to the business. Its uses were yet unknown, and the world of wealth that lay beneath the soil was little dreamed of.

Illuminating oil was first made from coal by Dr. Gesner, of Nova Scotia, in 1846. The Long Island Kerosene Oil Company commenced the first manufacture of carbo-hydrogen oil in 1854. In 1856 the Breckenridge coal oil works were commenced at Cloverport, Kentucky. In four years there were over fifty factories in operation, requiring a capital of about four millions of dollars; while the manufacture of lamps for the use of the new discovery formed the principal business for no less than sixteen companies and 2,250 hands; and the manufacture of lamp-wicks alone required the working of 125 looms.

Meanwhile, the oil region of Pennsylvania began to attract attention. In 1854 Messrs. Eveleth and Bissell, of New York, formed a company and secured the upper Oil Creek Spring. In 1858, Bowditch and Drake, of New Haven, commenced active operations at Titusville. They had reached a depth of seventy-one feet, when one day in August, of the above-named year, the drill suddenly sank into a cavity. Upon being withdrawn the oil rose to within five inches of the surface. The pump was applied and a thousand gallons were drawn off in a single day. The news spread like wildfire. The wildest excitement prevailed. Hordes of greedy speculators rushed to the spot, and Oil Creek became the golden El Dorado of ambition and avarice. Land which but yesterday was hardly worth the taxes, sold to-day for a thousand dollars an acre; and ere long there was scarcely a lot for ten miles along the valley that had not been bought or leased at fabulous prices.

Companies were organized far and near, and as they came flocking into the land flowing with untold wealth, hamlets and villages sprung up, as it were, around every farm house. An army of coopers were required to make the barrels, and a host of mechanics to keep the engines and running machinery in repair. The tall, dark forest disappeared, and the quiet valley became a babel of ambitious humanity. The whistle and puffing of steam engines, the clinking of drills, and clanking of laboring pumps, the setting of iron hoops, the shouting of teamsters, and handling of barrels, all commingling, caused a confused din that filled the air for miles; sounding in the distance like the hum of some vast bee hive. Tall columns of thick dark smoke shot up from the long black smoke-stacks of the drilling engines; often causing a dingy haze of smoke to settle all along the valley. Stupendous refineries and distilleries arose as if by magic, and it became the business of a railway to convey the kerosene from the place. A new era had been reached in the history of oil, and the business of the whale fishery had received its death blow.

In 1859 the Erie railway carried 325 barrels to New York. In 1862 it carried over five thousand car loads, or more than eleven millions of gallons. In that year, 1,600,000 gallons were sent to Liverpool, 1,100,000 to London, 900,000 to Antwerp, 700,000 to Havre, 600,000 to Bremen, 240,000 to Hamburg, 200,000 to Marseilles, 170,000 to Cork, 130,000 to Queenstown, 260,000 to Cuba, and 300,000 to Australia. Such was the growth of the oil business in three years.

The oil regions are often the scenes of fearful disasters and conflagrations. In the latter part of the year 1861, a noted well on Oil Creek took fire from a cigar. An explosion immediately ensued, and of the forty persons who were standing near at the time, fifteen were instantly killed, and thirteen more burned and wounded. A fountain of fire, from thirty to fifty feet in height, continued to burn for some time.

A more terrible conflagration took place when the Little & Merrick well burned, in the afternoon of April 17th, 1861. This well had formerly been only 150 feet deep, and the supply not being satisfactory, it was deepened to the depth of 330 feet. All at once the oil and gas rushed forth in a stream about four inches in diameter, with such force as to send its spray far above the tops of the derricks. The surrounding atmosphere became speedily filled with the sickening odor of gas and oil. It was too much for the laborers to bear, and they forsook their work and fled. A great crowd collected around the spot to witness the wonderful oil fountain. Suddenly there were two vivid flashes, almost blended in one, and two mighty explosions that almost caused the solid hills to tremble for miles around. In an instant the great jet was a blaze of flame. Enormous sheets of liquid fire were hurled and scattered in every direction. Six persons were burned to a coal where they stood. Many more were so badly burned that they died of their wounds in a few days; and others at this late date are reminded of that awful conflagration by the horrid scars they bear. A single spark, perhaps from some of the laboring engines, had done the work. A scene of wild excitement and indescribable confusion at once ensued. The pump works, engine house, surrounding buildings, and the ground in the vicinity, had been covered with an immense mass of oil, all of which burst into a grand blaze of fire. When the sable curtain

of night had wrapped the surrounding world in darkness, that fiery fountain, over a hundred feet in height, presented a vivid scene of terrible grandeur. The whole valley, as far as the eye could see, with its scores of tall derricks, and warehouses, and barrel factories, and tanks, and distilleries, was magnificently lighted up. From the top of the angry fire column stupendous masses of thick black smoke rolled upward, above the surrounding hills, striking terror to the strongest hearts. During this fire four wells lost everything.

A still greater conflagration occurred when the tanks of the Filkins well caught fire in the fall of 1862. The flames spread with alarming rapidity, and ere long twenty acres were completely wrapped in the destructive element. Upon this area stood 150 oil tanks, filled to the brim, together with all the offices, machine shops, and all the paraphernalia of a giant kerosene oil establishment. "Seven flowing and three pumping wells, with thirty thousand barrels of oil, took fire in quick succession." The angry flames ran through the green maple forest as though it had been tinder; singeing the tops of the tallest trees with a roar like thunder. The thick smoke rolled along in great black suffocating clouds, almost stifling the brave men, who in their heroic endeavours to save what property they could, dashed about among the tanks of oil, perfectly regardless of danger. Down the side hill the fell destroyer went, until it reached the creek, and here for a long distance the oil upon the surface of the water burned with a vengeance. More than once since then Oil Creek has been a grand mass of flame for miles, and the banks on either hand, wherever covered with forests, have suffered the horrors of an extensive conflagration. Notwithstanding its many disasters the oil regions of Pennsylvania are in a flourishing condition, and the name of Oil City will long be famous as the place that supplies the world with oil.

The Dancing Girls of Egypt.

BY CHARLES G. LELAND

The great desire of the gentlemen who come to Egypt is the dancing girl. If it were put to the vote, most of them would prefer her to the Pyramids, if not to the Nile. Even the moral and pious, the oldest and coldest, cannot forego this bit of temptation; so they get themselves earnestly assured by their dragoman, or, better still, by some gentleman of acknowledged high character—if possible from Boston—that there is really nothing in her performance which would call a blush, etc. It is better still if Mr. High Character gravely assures them that in fact he found it very stupid and the Ghawazi very ugly. All of this is most thankfully accepted, for, admitting it in full, the dancers are still improper—which has a charm beyond beauty or grace, and however good a man may be he is seldom willing to admit he did not see it, and knows nothing directly about it. Hardened worldlings who frequent the regular ballet are not so deeply disgusted with the Ghazien, nor do they find her so altogether stupid or so invariably ugly.

Most of the dancing of the Ghawazi is indifferent enough. It is, however, remarkable, that what skill they do exhibit, even under these circumstances, is seldom appreciated; for the dullest of them generally affect muscular feats, such as one never sees in the West, yet which are not directly perceptible. They all seem to have the power of moving any part of the body freely, just as certain persons can move their ears; and it is wonderful how they will continue to agitate every muscle in the most violent and rapid manner for hours, quivering from head to foot as if electrified, without being in the least fatigued, and what is incredible, without perspiring.

I only once saw Ghawazi dancing which was, in the opinion of native gentlemen, and of Europeans who had been many years in the country, and had full opportunities of judging, of a really superior and artistic character. This was at Girgeh. There were two girls, one quite pretty and young, the other less attractive, but the better dancer.

These dancing girls were dressed in long skirts, one over the other, reaching to the ankle, the upper garment being of a whitish yellow or reddish color. The body and arms were clad in a very dark, tightly-fitting chemise, with white stripes, half an inch broad, about two inches apart, looking tiger-like. Over this was worn a very tight jacket of red satin, very short in the waist, with tight short sleeves. On their heads were curiously shaped caps, and their hair hung in long braids. Around the waist was a silver girdle with high bosses, and dependent from it in loops was a very curious and massive ornament or chain, made of eight or ten triangular silver losses, and many large silver beads. A profusion of

gold necklace, coins and other ornaments hung from the neck and head. Other Ghawazi at different towns wore dresses very different from this. At one place their garments were of black from head to foot, with silver stripes, while the braids of hair were very prettily made, terminating in many silver balls. At Siout I saw one whose only ornaments were an incredible quantity of gold coins of all sizes.

The first dancing of all Ghawazi is simply moving about to the music and undulating the body. Then waves of motion are made to run from head to foot, and over these waves pass with incredible rapidity that ripples and thrills, as you have seen a great billow in a breeze look like a smaller sea ribbed with a thousand wavelets. All is done in perfect time with the music. Then the air changes and there is a variation in the dance. The girl stops—she becomes immovable below the body and moves only the body above, rocking and swaying, expressive of suffering from intense passion. At times, and in time with the music, a convulsion thrills the waist, arms and head, and sometimes the muscles. She becomes quiet; but if you observe closely the movement, passion and exertion are not less intense, and the breasts continue to move as if vitality remained in them alone; perhaps only one throbs violently.

There is another change, and the dancer sinks slowly almost to her knees, as if over-powered with passion, while the arms sweep in singular but graceful gestures. Perhaps she "waves" slowly in a walking dance, moving the lower part of her body forward more and more with a vigorous quivering, and once in ten seconds starting with a convulsion which gradually becomes more frequent until she apparently yields and expires.

The girl at Girgeh performed a very pretty dance, which was quite a poem. Placing a cup, symbolic of temptation, on the ground, she danced around it in a style which was perfectly Spanish, turning the body and sinking low with great grace and exquisite art. The cup appeared to exercise a terrible fascination and she seemed afraid to drain it. The fear was perfectly acted. Five times without aid from her arms she almost lay on the ground, with her thirsty lips just dallying with the edge, and then rising swept in dance, and thrilled, and shivered, and turned, and sank again. The sixth time she had completed a circle, and, no longer able to resist, she approached the cup with throbs and pauses, and then without using her hands lifted it from the ground with her lips alone, draining it as she rose, and, the tragedy of temptation being over, merrily danced about the room in quick step, with her head thrown back, holding the cup all the time in her mouth.

Then the elder girl placed a cup on her head, and danced for a long time a great variety of movements without letting it fall, the same being done in turn by the younger. I did not see, however, as my fellow travelers did on another occasion, dancing girls who, while dancing, made cups run from the head down the side of the face, along the arms and back, as a skilled Hercules in a circus makes cannon-balls travel around him. This is, however, rather juggling than dancing. Sometimes a stick is used in these performances. Sometimes the two girls dance a duo; and I have seen this made quite as improper, though not so sickly sentimental, as in any opera house in Europe, when the ballerina falls back into the male object's arm, eyeing him with a leering smile, while she lifts one leg to the gallery.

There are 'Awalim and 'Awalim, and Ghawazi and Ghawazi. Some are mere peasant girls, who work by day and dance by night; and others are low caste, and dance coarsely, with a male jester taking occasional part in the performances, as I saw at Luxor. I am told that the best are to be seen in Cairo, in the grand harems on great festival occasions. Their style of dancing is the same that prevails, with variations, all over the East, and the great difference between it and that of the West is simply that the one consists principally of expressive movements and pantomime of the body, while the latter is chiefly jumping with the legs. There is just the same difference in their dancing and ours that there is in the music; and the Oriental is physically quite a difficult as the other.

When I was on the Nile I gave the Ghawazi the name "Wavers," as expressive of their movements. Long may they wave!

ENDERNESS is the repose of passion.—JOURNET.

CAPTURE OF THE ELEPHANT;

OR,

Royal Sport in Ceylon.

BY JASPER T. JENNINGS.

The whale has been justly called the "biggest born of earth," and the "monster of the seas." On land, however, the elephant, in regard to size, stands at the head of all quadrupeds. Its gigantic height and colossal proportions, so much in excess of all other land animals give to it a majestic and imposing appearance; and the hunter feels a thrill of pride at his capture, not experienced in the same degree by the capture of any other animal. He knows he has met and vanquished the largest animated being that walks upon the solid earth; and to him there is a feeling of dignity in the thought.

There are two species of the elephant, known and distinguished as the Asiatic and the African. The Asiatic elephant is the largest; specimens having been captured that measured ten or twelve feet in height, and weighed ten thousand pounds, or five tons. The African species are generally more docile. They have larger tusks than the Asiatic elephant, and are, therefore, more valuable for their ivory. Young elephants have no visible tusks; but as they approach maturity they are often found six or seven feet in length, and capable of sustaining more than a thousand pounds weight. Several of the tusks measured by Eden were found to be nine feet in length; and Hartenfels tells us that he measured one that exceeded fourteen feet in length. The largest tusk on record was sold some years since at Amsterdam. Its weight was 350 pounds. The best ivory often sells in the market for from \$1.25 to \$1.50 per pound; the largest African tusks frequently bringing two or three hundred dollars.

The eyes of the elephant are small and brilliant, and the ears of the African species large and pendant. They are awkward and unyielding in appearance, and yet they will sometimes almost outstrip the fleetest horse. The elephant possesses great strength; drawing with ease a load that six horses cannot move. He will easily travel fifty or sixty miles a day, and if hard pressed a hundred. In India they are used as beasts of burden; carrying heavy commodities from place to place, and removing the great car of Juggernaut, and are even trained to work in the pursuits of agriculture. The price of a good worker ranges from eight to fifteen hundred dollars. In some countries they are trained to fight in war; when they become a terrible foe to the enemy, crushing, mangling and trampling them to death in a horrible manner. They commonly live to the age of nearly two hundred years; though some authors have asserted that they have been known to live much longer. At the time of the conquest of the world by Alexander the Great, Porus, king of India, was overthrown after a desperate struggle, in which a large number of elephants were engaged. One of these ponderous animals, which had made itself conspicuous by its great size, and drawn the attention of the army to its deeds of valor and prowess, fell into the hands of the victor. Alexander named him Ajax, dedicated him to the sun, and let him go, after branding him with this inscription in plain letters on his side: "Alexander, the son of Jupiter, dedicated Ajax to the Sun." 350 years afterwards, we are told, the same elephant was found still bearing the same inscription.

The most singular and yet most powerful part of the animal is its trunk. This curious organ is said to consist of forty thousand muscles; enabling its possessor to lengthen, or shorten, or coil it around objects at pleasure. At the lower end is a finger-like appendage, by means of which it can gather leaves or grass, and convey them to the mouth. Large quantities of water are sucked into the hollow proboscis, or trunk, and placed in its mouth, or spouted forth, to descend in a shower upon its body, or that of others. The elephant is a sort of light brown, or mouse color, and its thick, tough hide, which is often destitute of hair, is often scratched and scarred during its conflicts with the other wild beasts of the forest. In Southern Asia elephants are trained to hunt the tiger, the dread scourge of the Indian jungles. A score of men mounted upon the backs of elephants proceed to the spot selected for the day's sport, and rousing the fearful beast from his lair commence the war. The Royal Bengal tiger is no trifling foe to contend with; and as he comes forth to meet his adversaries a scene of wild excitement is ushered in. The tiger is generally soon dispatched; but often not before he has left his cruel mark deep in the bleeding flesh of the elephants and men. In the wilds of savage Africa the wild elephant and the ponderous rhinoceros often meet in deadly combat, and retire not from the field until one or the other lies helpless on the ground, weltering in blood. Most generally the elephant comes off victorious; his eyes red with rage, and his long ivory tusks dripping with gore. Sometimes, however, the rhinoceros gains a temporary advantage, and with his great ugly horn plows awful gashes in the side of the exasperated elephant, through which the entrails protrude, and he sinks in a dying condition before his inveterate foe.

The island of Ceylon, in the Indian ocean, south of Hindostan, appears to be the natural home of the elephant; for here in the great forests they often move about in herds of 150 or 200 in number. There are several modes of capturing them; the chief of which is driving them into a strong enclosure, driving them into pitfalls, and enticing them away by means of tame elephants. The Ceylonese generally employ the first method. Having learned the situation of a large herd, they

proceed to surround the forest with an army of men, disposed in the form of a circle, thirty miles in circumference. Fires are lighted upon rude movable stands, raised upon light posts about four feet above the ground and about twelve or thirteen rods apart. These are kept constantly burning; and daily they are moved cautiously forward about a quarter of a mile until they do not exceed twenty feet apart.

The encircled animals now begin to be uneasy and eager to escape. They eye with grave suspicion the work going on around them, and crowd up to inspect the investing line; but the smoke and flame of a thousand fires, and the shouting of a thousand stentorian voices, strike the herd with awe, and they draw back in fear. The line is again moved forward, and the space wherein they stand becomes gradually less and less. Meanwhile a large force of men have been busily at work, chopping, hewing and pounding, preparing a strong enclosure to help hold them in as the circle becomes more and more contracted. Heavy beams of wood are drove into the ground to the depth of five or six feet, and firmly fastened together by cross timbers. Boughs and green branches are thrown over it to give it more the appearance of a thick forest than a palisade, and before the animals are aware of it they have passed into the great funnel-shaped enclosure, and through the gateways into the inner circle. Men rush forward and secure the entrance, and the whole herd are fastened in an enclosure about a hundred rods in diameter.

At the further end is another gateway, communicating with another passage about a hundred feet long by forty wide, through which flows a rivulet about five feet deep and covering nearly the entire area. At the further end of this, beyond the water, the strong side fences approach each other and terminate in a small passage about a hundred feet long, and only wide enough for one elephant to pass at a time. At the entrance to the watery enclosure is a trap-gate of heavy hewn logs, rolled up by means of ropes running over poles or pulleys above, and hid from sight by limbs and brushwood. Upon the top, behind a mass of green boughs, sits a man with a hatchet in his hand, ready to cut the ropes at the given signal, and let the ponderous gate drop to its place below.

Everything being ready the men enter the outer enclosure, building fresh fires, shouting, and blowing horns, as they slowly advance, working the immense herd onward towards the next passage. Only men of strength and strong nerves enter the enclosure; for great skill, and cool and determined judgment are necessary to conduct the forward movement. Sometimes the animals become enraged and make a dash upon their pursuers, compelling them to beat a hasty retreat, and dodge out between the pales. They return, however, after a few minutes, with reinforcements and fresh fires, and with terrifying yells and shouts again urge the doomed herd forward. Seeing the open gateway unguarded, and no doubt thinking it a grand chance to escape into the water and forest beyond, they enter with a rush and jam, like a flock of frightened sheep, pell mell, into the watery enclosure beyond.

As soon as the last one has passed through, the ropes that hold the sliding log gate are cut, it descends to its place with a dull, heavy thud, and the captive animals are huddled together in an area so small that they have little chance to resist. This enclosure is much stronger than either of the others. It is composed of trunks of trees, withed and doweled together with huge cross beams and supports, and sunk deep in the ground, forming a gigantic fence twenty feet in height, so strongly braced and interlaced with timbers and bamboos that its demolition can hardly be thought of. Sometimes, however, when a very large herd has been entrapped and maddened to desperation, they have been known to rush in a body against the fence, and in the terrible moment of their wild frenzy, rend it to the ground; and in spite of every resistance, trample over all opposition and make their escape to the surrounding forest.

Hundreds of men surround this last enclosure, with spears and lances in their hands, and as they approach the entrance of the barrier, their trunks are pricked and they are forced back. Finally one of their number ventures into the long narrow passage beyond. At the further end, where it is only just wide enough to admit his immense body, the poor deluded beast finds the alley closed. Escape is impossible in that direction—he cannot turn around, and he endeavors to move backwards. But too late; strong bars have been thrown across the passage behind him, and he is imprisoned in a space so small that he touches the sides on almost every hand. Strong ropes are now passed through and his legs securely tied, and an apparatus of cords fastened around his neck. Finding himself ensnared he rears upon his hind legs and throws all of his strength into one mighty effort to escape. The structure trembles about him, and the forest echoes back the thunders of his exertions. The hunters, however, have ere this climbed to the top of the great trap, and striking him upon the head with their spears and javelins, soon cause him to desist from his violent struggles. A strong collar is now placed about his neck, and he is soon completely harnessed; when two tame elephants are brought up and placed, one on each side of the gateway. Their movements are at once amusing and interesting. They eye the wild captive for a few moments, and then reaching in their trunks feel his mouth to ascertain whether he has tusks or not; and if so, feel along to determine their size; after which they seize his trunk to try his strength, and find out his power of resistance. Strong ropes are quickly passed through the collar of the wild captive and made fast to those of the tame ones, when the bars are suddenly drawn out

and the huge beast bounds forward. But it is only for a single leap; for its legs are yet bound to the heavy timbers, and he comes instantly to a stand still.

The keepers mount upon the backs of the tame elephants, adjust the fastening lines, and when the large ropes that bound the wild elephant's hind legs are cut loose they ride away with their captive before them. The tame elephants press against him as they walk along, and if he apt refractory, or unruly, they batter him with their heads to bring him under subjection. He is conducted to a large spot between two trees, when his hind legs are again strapped together, and fastened to one of them by several turns of the thick rope, while one of his fore legs is bound in a similar manner to the other. He is now delivered over to the keeper, while the tame animals are disengaged from the prisoner and pushed back to the trap to take out another. In this manner scores of domesticated animals are busily engaged for a day or two, leading out prisoners; and by the time the trap is empty the forest in the immediate vicinity is filled with captive elephants.

When an unusually large, fierce specimen, filled with a stubborn vindictive spirit, is taken, he is held in a stall prepared for the purpose, where his neck is placed between two heavy beams of new lumber, and his legs firmly bound together with ropes or chains, and fastened to timbers and trees in such a manner that escape is absolutely impossible. As he finds himself fastened and alone, he gives way to a fit of unbounded rage. His small bloodshot eyes gleam like balls of fire with his angry glances, and his mighty struggles are fearful to behold. The entire stall, or rack, trembles to its foundation; and the trees bend and shake from their tops to their roots, as if in the grasp of the whirlwind; while his loud bellowsings and detonations of anger resound through the forest like the thunder of the approaching hurricane. The uninitiated spectators flee in terror; expecting to see the stall torn asunder, and the maddened beast stalk forth to vent his rage on the assembled crowd. But everything is made in the strongest form by those who understand the business, and soon a thoroughly rarefied crowd.

The captive beasts receive but very little food, and they are soon reduced to starvation and appearance. They are crossed by their keepers, and at night they are allowed no food, not leaves and tender young plantain leaves. When an angry roar the poor brute bawls forth from him with defiance, or crushes them contemptuously beneath his feet. At length he becomes gloomy and sullen, his eyes are hollow and sunken with an expression of sorrow and melancholy, and sinking with years he submits himself completely to the will of his keeper. Some give up after eight or ten days; while others continue obstinate for fifty or sixty; but when they have once really submitted, they become docile and gentle, and attached to their keeper as much as the dog ever is to his master. Like the horse, the most vicious at first often make the best animals when once thoroughly broke.

About a Bat.

One of our common bats (probably either the "little brown bat," *Vespertilio subulatus*, or the "little red bat,") flew into the house one evening and was caught under a hat. It squeaked and snapped its little jaws so viciously that all efforts toward closer acquaintance were postponed until morning. When we viewed the next day it seemed as fierce as before, but less active in its movements, probably overpowered by the glare of daylight. When touched, its jaws opened wide, the sharp teeth were exposed, and from its little throat came sharp steely clicks so characteristic of our bats. Nor did this fierce demeanor soften in the least during the day, and when night approached I was about to let it go, but the sight of a big fly upon the window suggested an attempt to feed the captive. Held by the wings between the points of a pair of forceps, the fly had no sooner touched the bat's nose than it was seized, crunched, and swallowed. The rapidity of its disappearance accorded with the wish to which the eater's jaws were opened to receive it, and, but for the dismal crackling of skin and wings, reminded one of the sudden engulfment of beetles by a hungry young robin. A second fly went the same road. The third was more deliberately masticated, and I ventured to put the devourer's head. Instantly all was changed. The jaws gaped as if they would separate, the crushed fly dropped from the tongue, and the well known click proclaimed a barred and defiance which hunger could not subdue nor food appease. So at least it seemed, and I think any but a cynic would have yielded to the temptation to fling the spectral creature out of the window. Perhaps, too, a certain obstinacy made me unwilling to so easily relinquish the newly-formed hope of domesticating a bat. At any rate, another fly was presented, and, like the former, stopped the moment my finger touched the head of the bat. With a third I waited until the bat had seemed actually swallowing,

and unable to either discontinue that process or open its mouth to any extent. Its rage and perplexity were comical to behold, and, when the fly was really down, it seemed to almost burst with the effort to express its indignation. But this did not prevent it from falling into the same trap again; and, to make a long story short, it finally learned by experience that, while chewing and swallowing were more or less interrupted by snapping at me, both operations were quite compatible with my gentle stroking of its head. And even a bat has brains enough to see the foolishness of losing a dinner in order to resent an unsolicited kindness. In a few days the bat would take flies from my fingers, although either from eagerness or because blinded by the light, it too often nipped me sharply in its efforts to seize the victim. Its voracity was almost incredible. For several weeks it devoured at least fifty house-flies in a day, (it was vacation, and my playmate had to assist me), and once disposed of eighty between daybreak and sunset. This bat I kept for more than two months. It would shuffle across the table when I entered the room, and lift up its head for the expected fly. When traveling it was carried in my breast pocket. In the Fall it died, either from over-eating or lack of exercise, for I dared not let it out of doors, and it was so apt to injure itself in the rooms that I seldom allowed it to fly. I should add that it drank frequently and greedily from the tip of a camel's-hair pencil.

The Great Northwest.

BY CAPTAIN CARNES.

At Vancouver's Point, it is said, there is one of the most beautiful scenes on the Columbia river. In the midst of a lovely meadow is a silver sheet, or lake of water, with many wild fowls sporting in the limpid waves. A range of wooded hills is capped or crowned by Mount Hood, a magnificent mountainous peak, covered with snow.

From Point Vancouver the river becomes more contracted and rapid, with frequent islands and sand banks. On these islands are numerous ponds which, at certain seasons of the year, have their waters stirred and eddied by flocks of geese, brandt, cranes, gulls, and the peerless swan. The closely wooded and rushy shores afford them choice feeding grounds, and make an almost impassable barrier for the sportsman.

Some miles above Vancouver's Point the mountains approach both sides of the river, which is bordered by mighty precipices, on which grow the white cedar and fir. An occasional cascade leaps down the rocks and loses its base in clouds of vapor.

Explorers declare that among some of these cliffs, continually fretted by falling water, are shown semblances of ruined towers and battlements, with loopholes and draw-bridges—all combining to make a weird and impressive picture.

The falls or rapids of the Columbia river, are situated about a hundred miles from its mouth. The first is a perpendicular waterfall of twenty feet, after which there is a swift descent for a mile or more between hard, black, rocky islands, when there is another pitch; beyond this, the river expands into a wide basin, seemingly dammed by a perpendicular wall of rock, finding passage to the left through a mighty chasm, there whirling and foaming and boiling with great violence. Yet has it been navigated even here by dauntless or reckless explorers. As the river concentrates its water and strength to pass through what is called the "long narrows," the Indians thereabouts take their stand upon the rocks in the spring time, to scoop out the salmon which at that time ascends the river in vast numbers.

On the banks the savages cure the fish after a manner peculiarly their own—drying, pounding and pressing them in a way that insures their keeping well for many months. The method of securing the fish by means of hooped scoop-nets, and the manner of preparing them by the aborigines about the Columbia, bespeaks a superior intelligence to that manifested by the Indians of the prairies; but it is also noteworthy that while the fisher savages are inferior in regard to form and muscular development, the hunter red men of our borders, from their almost constantly being on horseback, acquire admirable figures, and quite a martial bearing, showing by conclusive argument, that habit and occupation makes or mars the human form divine.

OLD MODES OF LOCOMOTION.

The Britons were the ancient inhabitants of Britannia. Concerning the origin of the population of the British Isles, which approaches the nearest to being indigenous, as being in possession of the soil at the time of its first discovery, there has been much doubt, and there is still some dispute.

When discovered by Cæsar, the Britons were hardly to be called a barbarous people, being scarcely removed from the condition of primitive savages. They generally went, both sexes, wholly naked; though some of them, whether separate tribes or superior individuals, it is not stated, wore garments of dressed leather. They tattooed

we learn that the Britons manufactured wicker vessels with extraordinary skill. Their costly and elegant baskets are mentioned by Juvenal, in speaking of the extravagance of the Romans in his time. They also constructed canoes of osier, covered with skins of animals, and in these they paddled about the rivers, creeks and fens of their country. Basket making is one of the simplest and most ancient of arts. The contrivance of fastening together branches, reeds of grasses, by interweaving others transversely would be suggested to the lowest intelligence, even without the frequent examples of it seen. These wicker boats, then, covered with skins, were one of the oldest modes of locomotion.

Such vessels are still used by Welsh fishermen.



ANCIENT BRITONS IN THEIR CORACLES OR WICKER CANOES.

their flesh, and stained themselves blue with wood-practices indicating a very low scale of humanity. They wore no armor, except bucklers, but understood the working of iron, brass and tin. They had horses, which they both rode and drove, harnessed in scythed cars, in battle. They had cattle in abundance, of which they used both the flesh and milk, though they knew not the use of cheese. It is doubtful whether they had any agriculture; some speaking of their raising grain, and drinking wine made of barley—ale—and others mentioning no such habits. Probably they write at different times; and, when first discovered by the Romans, they did not till the soil, but speedily learned to do so.

From the accounts furnished us by the Romans,

Mention of chariots is found among the most ancient records of the human race. They were in use by the Pharaohs of Egypt (Gen. xii. 43), and in Solomon's time were exported to Syria (1 Kings, x. 29; 2 Chron., i. 16 and 17). As appears from the ancient Egyptian sculptures and paintings, the construction of these chariots embodied the same principles which are found in the modern style of carriages; the wheels were made with spokes and metallic tires, and the poles were crooked near the axle—a form introduced into English carriages only about the commencement of the present century. A drawing of one with four wheels, used for religious purposes, has been met with, and others with an umbrella cover, the rudiment of the closer covering of more modern vehicles. The latter was drawn by oxen, and were apparently designed for travelling carriages for ladies of rank. From the sculptured slabs of Nineveh

similar evidence is obtained of the use of carriages by the Assyrians and contemporaneous nations.

Covered carriages, highly ornamented, became appendages of Roman pomp and magnificence; but under the feudal system they were banished on account of their tendency to render the people effeminate. During the middle ages the only riding practised was on horseback; and when near the close of the fifteenth century carriages began again to appear, they were esteemed proper only for women and invalids.

Coaches were introduced in the year 1564, as Stone states, by a Dutchman, who became the queen's coachman. "After awhile," he adds, "divers great ladies, with as great jealousy of the queen's displeasure, made them coaches, and rid in them up and down the country, to the great admiration of all the beholders; but then, little by little, they grew usual among the nobility, and others of sort, and within twentie years became a great trade of coach making."

In 1619, the Duke of Buckingham used one with six horses, and the Earl of Northumberland, to ridicule this pomp, appeared in one with eight horses.

The period in which coaches became familiar can, therefore, be referred but little farther than the time of the settlement of New England; and for a century afterward the use of private carriages in the country was limited to the aristocracy and wealthy classes. In London coaches began to be kept for hire in 1625.

In 1673, there were twenty hackney coaches in Edinburgh, but the narrowness of the streets or the state of the roads must have rendered them comparatively useless, for in 1752 there were only fourteen, and in 1778 only nine, while the number of sedans increased.

The conveyances through the interior were the cumbersome stage wagons, used for carrying goods; in the tail of which, as it was called, was reserved a covered space for five or six passengers, who sat upon the straw on the floor. Even such accommodations as these were known only on the great thoroughfares; the conveyance of goods inland being for the most part by pack horses.

The stage-coach of the eighteenth century had very little in common with the mail-coach within our memory, when stages with four, and even six horses attached, dashed over our American roads, with passengers safely seated in the comfortable vehicle; behind which Jehus flourished their long whips with conscious pride in the importance of their position. In Hogarth's Country Inn Yard we have a representation of the old stage-coach, which explains the fact that no one with the smallest power of bestriding a horse would ever have thought of making use of them. The roofs of the coaches in most cases, rose into a swelling curve, which was sometimes surrounded by a high iron guard. The coachman and the guard, who always held his carbine ready cocked upon his knee, then sat together; not, as at present, upon a close, compact, varnished seat, but over a very long and narrow boot, which passed under a large spreading hammer-cloth. Behind the coach was the immense basket, stretching far and wide beyond the body, to which it was attached by long iron bars or supports passing beneath it. The wheels of these old carriages were large, massive, ill-formed and usually of a red color; and the three horses which were affixed to the whole machine—the foremost of which was helped onward by carrying a huge, longed-legged elf of a postillion, dressed in a cocked-hat, with a large green and gold riding-coat—were all so far parted from it by the great length of their traces, that it was with no little difficulty that the poor animals dragged their unwieldy burden along the road. It groaned and creaked at every fresh tug which they gave it, as a ship rocking or beating up through a heavy sea strains all her timbers, with a low moaning sound, as she drives over the contending waves. To this very cheerful picture of the delights of the road at this epoch, we may add that the unfortunate passengers might expect the monotony of their journey to be broken at any moment by the appearance on the scene of the regulation highwayman of the period, the supposed valor of the guard, with his formidable-looking blunderbuss, turning out to be a snare

and a delusion, and vanishing at once before the threatening pistol of the Claude Duval or the Dick Turpin of the hour, when a compulsory handing out of purses would immediately ensue.

Whilst stage-coach conveyance was only available along a very limited number of roads, and during that still earlier period when such roads as really existed were impassable for wheeled carriages, women were accustomed to ride behind one of the ruder sex, on what was called a pillion (from pillow). This is defined by Johnson as a soft saddle seat behind a horseman for a woman to sit on. Even queens, on long journeys, preferred a seat on a pillion, behind one of their officers, to any other mode of conveyance. When Katharine of Spain came over, in 1501, to marry Arthur, son of Henry VII., she rode on a horse from the Tower to St. Paul's, "with the pillion behind a lord named by the King." A similar method of riding is not obsolete even in the present day in remote country districts, if we may trust to certain representations of weddings in North Wales, where the bride and bridegroom are depicted as galloping furiously from a church, the former keeping her seat in a manner that we should conceive impossible to any but a professional circus-rider.

The gentleman's carriage of the eighteenth century was a cumbersome and gaudy piece of architecture, somewhat resembling the Lord Mayor's coach of modern times. Glass windows were first added to coaches at the beginning of the seventeenth century, and springs about forty years later. Under the seat of the coachman was carried a box (hence the name of coach-box), for containing the hammer and other tools that might be wanted to repair damages. This was concealed by the hammer-cloth, which name is still retained in carriages of the present day, though no modern Jehu is expected to be an accomplished carpenter and wheelwright, as well as an experienced charioteer. Nor was this all unnecessary. The travellers in coaches had many perils to encounter from collisions with reckless carmen by day, and from dimly-lighted holes and pits in the road by night.

Sedan chairs were first seen in England when Charles, son of James I., on his return from Spain, brought with him three specimens of a peculiar character, somewhat resembling the Indian palankeen in the manner in which they were carried. The favorite, Buckingham, being in the habit of travelling about London in one of these, was abused by the populace for turning men into "slaves and beasts of burden." In spite, however, of popular clamor, and the furious opposition of coach-drivers, this new and handy method of travelling steadily grew into favor. The frontispiece of a tract published in 1636, and entitled "Coach and Sedan Pleasantly Disputing for Place and Precedence," represents the form of the sedan and its bearers, touting for custom. The mode of carrying was the same as that adopted in the later sedans. In the eighteenth century we find that the sedan, though considerably altered in form from the original type, had become a universal mode of conveyance for the higher and middle classes of society. The state of the pavement in the metropolis and the chief cities of Great Britain caused the sedan to be preferred, both for comfort and safety, to every description of coach. As there were no footpaths, and only a line of posts in the principal streets to protect pedestrians, none would even walk any distance who could afford to hire a sedan. The London chairmen were a numerous and influential body. Those who were in the service of the aristocracy had their gorgeous liveries, epaulettes, and cocked hats. The hackney chairmen pervaded the neighborhood of tavern doors, where they waited to be hired. They were chiefly Irishmen, and were distinguished by their muscular development, especially in the calves of their legs. That they were popularly believed to be somewhat given to insolence may be gathered from an incident in one of Smollett's novels, where, in retaliation for the hero having been insulted by two chairmen, the man who acts as his servant and trusty henchman conceals a number of heavy weights about his person, and hires the delinquents to carry him a certain distance. Staggering under the unusual load, each chairman suspects his comrade of not taking his fair share of the burden, and begins to abuse him accordingly. The strife waxing hotter, the two belligerents ultimately set down both box and passenger, in order to settle the dispute with their fists; whilst the

real author of the quarrel quietly slips away, having deposited his weights in the chair for the subsequent enlightenment and consolation of the mutually-battered disputants.

In McCulloch's account of the British Empire we read that "It was not till after the Peace of Paris, in 1763, that turnpike roads began to be extended to all parts of the kingdom." It is not surprising, therefore, that the old method of transporting goods on the backs of horses should have been practised up to a comparatively recent period. Passengers also frequently availed themselves of this primitive mode of travelling. Smollet's Roderick Random is described as riding from Scotland to Newcastle-on-Tyne, sitting upon a pack-saddle between two baskets; one of which contained his goods in a knapsack. The pack-horses travelled in gangs of thirty or forty, walking in a single file. The leading and most experienced horse carried a number of bells as a guide for those which followed him, and also as a warning to travellers coming in an opposite direction, who were expected to step off the narrow causeway until the whole train had passed. When two strings of pack-horses met in this way, a quarrel between the drivers of the respective gangs must have been all but inevitable; and, as these worthies had a much greater acquaintance with the *fortiter in re* than with the *suaviter in modo*, a free fight was the ordinary wind up of the controversy.

Bell's steamer, *The Cornet*, was the first practical steamboat that was employed for the conveyance of passengers. In 1812, this vessel, projected by Henry Bell, a tavern keeper, began regularly to ply between Glasgow and Greenock.

George, and his son, Robert Stephenson, were the founders of modern railway travelling. The Locomotive, called the "*Rocket*," won a £500 prize offered by the directors of the Liverpool and Manchester Railway in 1829, and it was the first that ran upon the new line. Compared to a modern locomotive, the *Rocket* was but an infant. It only cost about £550; weighed, with its tender, between seven and eight tons; and its greatest speed was about twenty-four miles an hour. Some modern engines cost £2,000 or more; weigh, with their tenders, forty-five tons; and have the power of attaining a speed of more than sixty miles an hour.

Sleeping Flowers.

Almost all flowers sleep during the night. The marigold goes to bed with the sun, and with him rises weeping. Many plants are so sensitive that they close their leaves during the passage of a cloud. The dandelion opens at five or six in the morning, and shuts at nine in the evening. The goat's beard wakes at three in the morning, and shuts at five or six in the evening. The common daisy shuts up its blossom in the evening, and opens its "day's eye" to meet the early beams of the morning sun. The crocus, tulip and many others, close their blossoms at different hours towards the evening. The ivy-leaved lettuce opens at eight in the morning, and closes forever at four in the afternoon. The night-flowering cereus turns night into day. It begins to expand its magnificent sweet-scented blossoms in the twilight; it is full-blown at midnight, and closes never to open again at the dawn of day. In a clover-field not a leaf opens until after sunrise. These are the observations of a celebrated English author, who has devoted much time to the study of plants, and often watched them during their quiet slumber. Those plants which seem to be awake all night, he styles "the bats and owls of the vegetable kingdom."

A French publication states that potatoes are now used in the manufacture of pipes similar in appearance to meerscham. The process is as follows: Take a potato, and having peeled it, place it in water acidulated with sulphuric acid, in the proportion of eight parts acid to 100 parts of water. Let the tuber remain in this liquid for thirty-six hours to blacken, then dry it with blotting paper. It can then be submitted to a certain pressure, when a material is presented which can be readily carved into any design. It is claimed that the counterfeit is marvelously perfect. By the same process a very good imitation of horn can be obtained, sufficiently hard to make billiard balls and the like. A striking resemblance to coral is obtained by treating carrots in the same way.

The Manner of Etching Glass by Means of Fluorine.

BY JAS. P. DUFFY.

Fluorine is a substance which has but little commercial value, and is never met with in a free state. It is obtained from fluor spar, and its most known combination is that of hydrofluoric acid, in which it is combined with hydrogen.

Hydrofluoric acid may be readily obtained by heating some coarsely pounded fluor spar, together with strong sulphuric acid, in a leaden vessel. A glass one cannot be used because the acid acts powerfully on that substance. The fumes of the acid and liquid should be carefully avoided, as they produce the most painful wounds if they come in contact with the skin.

Hydrofluoric acid, besides its occasional use in the laboratory, is much employed for etching glass. The following is the method of conducting this process:—

A tray of lead is made by bending up the sides of a sheet of that metal so as to form a rim on all sides. This tray is supported on a stand, and coarsely pounded fluor spar, to which some strong sulphuric acid has been added, is thrown inside. A glass plate is then covered with beeswax; and, on this, when cold, a sketch is made by means of a needle point, so as to expose the glass surface. The plate is then placed with the sketched part face downwards, over the mixture last mentioned, so that its edges may rest on the edges of the tray. A gentle heat is then applied by means of a spirit lamp, when the hydrofluoric acid rises in vapor, and attacks the exposed surface of the glass. By these means such portions are completely etched out; and on the wax being removed, the design appears beautifully traced on the glass surface.

The best wax for covering the glass is that obtained by melting wax candle ends. It is generally run over both sides of the glass, lest the vapor might attack both sides. Some pretty effects are produced by first sketching the design, with a soft black-lead pencil, on paper. This drawing is easily transferred to the wax surface by pressing the pencilled paper thereon. This forms a guide for the subsequent tracing by the needle point. By such means the figures are produced on the ornamental sheets of glass so much used for sashes in place of Venetian blinds.

Power of the Whale.

If the whale knew his own power, he would easily destroy all the machinery which the art of man could devise for catching him; it would be only necessary for him to swim on the surface in a straight line, in order to break the thickest rope, but instead, on being struck with a harpoon, he obeys a natural instinct, which, in this instance betrays him to his death. Sir Humphrey Davy, in his "*Salmonia*," observes that the whale, not having an air bladder, can sink to the lowest depths of the ocean; mistaking the harpoon for the teeth of a swordfish or a shark, he instantly descends, this being his method of freeing himself from these enemies who cannot bear the pressure of a deep ocean; and from ascending and descending in small space, he thus puts himself in the power of the whaler. If we include the pressure of the atmosphere, a body at the depth of 100 feet would sustain that of sixty pounds on the square inch; while one at 4,000 feet, a depth by no means considerable, would be exposed to a pressure of 1,800 pounds. We need not, therefore, feel surprised that on the foundering of a ship at sea, though its timbers part, not a spar floats to the surface; for if the hull is sunk to a great depth, all that is porous is penetrated with water, or is greatly compressed. Dr. Scoresby says that when, by entangling the line of the harpoon, a boat was carried down with the whale, it required, after it was recovered, two boats to keep it at the surface. As soon as the whale dives after being wounded, it draws out the line or cord of the harpoon, which is coiled up in the boat, with very considerable velocity. In order, therefore, to prevent any accident from the violence of the motion, which might set the side of the boat on fire, one man is stationed with an axe to cut the rope asunder if it should become entangled, while another, furnished with a mop, is constantly wetting with water the channel through which it passes.

Truth, or Fiction.

Orenburg is a town of European Russia, situated in the Ural mountains, near the Asiatic border. About a year ago Abraham Chorkov, a wealthy Jewish inhabitant of that town, was lying dangerously sick with typhoid fever. On the 22d day of September, at midnight, a crisis set in which seemed to take a fatal course; the man suffered and struggled, and his physicians called it the agonies of death. A number of Jews were called in, prayers were offered, wax candles were lighted, and behold! the patient, who was supposed to be in the last stages, commenced to breathe freely, opened his eyes, and looked with astonishment at the surrounding scene. But the sequel has no precedent. The man soon after fell into a sleep which the physician declared to be a healthy one. In the morning he awoke, saw wife and children around him, who partly in anguish and partly in joy were waiting for his awakening. His wife, overwhelmed with joy, wanted to throw herself upon his neck, but by signs he repelled her, and demanded something in a language which none of them understood.

It should be mentioned here that Abraham Chorkov is a man of sallow appearance, tall and lean, looking like a genuine Russian Jew, with long black whiskers and beard, black eyes, and a long Oriental nose, and that before his sickness he understood no other language than Hebrew and a little Russian, being one of the most illiterate Jews found in such large numbers in that part of the world. Now the man began to speak in a language unintelligible to every one around him. The physician who was summoned did not understand him. With contempt he pushed away his wife and children whenever they attempted to come near him, and the doctor gave it as his opinion that in consequence of the typhus the fellow had become insane. The despair of the family lasted for many days. His wife had, in the meantime, sent to Tambov for his parents; but on their arrival Abraham would not recognize them, did not understand their language, and appeared to be angry that no one understood him. After a week he rose from the bed, and his wife gave him his clothes as worn by him before his sickness, the usual habits of the Russian Jews. He examined them closely and laughed heartily. He wanted to run out, but the people quickly shut the doors, fearing he would take cold. He remained in the room, pacing it with meditation. Passing a looking-glass, he beheld his figure in it. He stopped before the mirror amazed, touched his curls, his big nose, his long beard, and burst out laughing, but then all of a sudden became quiet and earnest and in deep meditation.

His wife and parents, who had witnessed this strange behavior, looked at each other with astonishment, and it now appeared to them that the man before them was not their Abraham Chorkov, but a stranger. But Abraham's forehead bore still the black line with which he was born, so that even the physicians who had attended on the patient for nearly two months had to laugh at the idea.

Abraham Chorkov looked often out of the window, and seemed surprised at the country about him, and one day he made strong efforts to run away. The family now decided to call in the government physician and other doctors, who, after a careful examination, pronounced him thoroughly sane. Although they understood not the tongue in which he spoke, they recognized it as a secular language, well articulated. Thinking he could make himself understood in writing, Abraham wrote a few lines on a piece of paper, which the physician read, but without comprehending their meaning. The writing is in a plain, good hand, in Latin letters, but the language was unintelligible to all, and no one could make out how Abraham Chorkov came to use Latin characters.

So things went on until it was agreed to take Abraham to St. Petersburg to the medical university to hear the opinion of the prominent scholars. As soon as Prof. Orlov heard the language of Abraham he recognized it forthwith as English. Abraham expressed immense pleasure at being enabled to make himself understood, and after some conversation, Prof. Orlov pronounced Abraham to be a very intelligent Englishman.

"But for God's sake," cried his wife, "how does my husband come to be English, and how did he forget his Hebrew language?"

Prof. Orlov listened with astonishment to the story

of Abraham's life, and would not believe that he had been a common, illiterate Russian Jew. He asked Abraham in English who he was and from whence he came, and Abraham replied in the same language, "I am from British Columbia, in North America; my native town is New Westminster. I have there a wife and one child living, and God only knows how I came here, or to this woman."

It is easy to imagine the great amazement on all parts. The Professor declared the parties to be frauds, or that a man abduction had taken place. He called upon the Government to have the matter investigated, and the family physician of Abraham, his neighbors and others were officially examined, the examination lasting for weeks. But nothing came of the examination, the matter remained as deep a mystery as ever, and the physicians contented themselves with declaring it to be a psychological puzzle, a revelation of the human soul which could not be explained. Abraham told the professor that although his name was Abraham, it was not Abraham Chorkov, but Abraham Durham, and that he had no other desire than to go back to his family.

One morning, when his wife arose, she found his place empty—he had disappeared. The marvellous story soon reached the ears of the Russian Emperor, who forthwith ordered diligent search to be made after the lost one; but all of no avail, the man could not be found; and at last it was generally believed that he had been insane, and in his insanity had sought his death in the river Neva.

In the spring of the year 1875 Prof. Orlov of St. Petersburg visited Philadelphia, at the request of his Government, to arrange the preliminaries of the Russian department of the Centennial Exhibition. One day, reading a newspaper, the following arrested his attention:

"In New Westminster an occurrence recently took place which caused a great sensation throughout the whole territory of British Columbia. On the 22d day of September, 1874, a fur dealer of said city was in a dying condition, suffering from typhoid fever, and no one, not even his physicians, seemed to entertain any hope as to the possibility of his recovery. Nevertheless, the patient rallied and fully recovered. But, wonderful to relate, the patient, who was an intelligent Englishman, had forgotten his mother tongue, and speaks a language which is understood by no one around him, but which at last is recognized by an inhabitant of the city to be a jargon of bad Jewish-German. The patient, before his sickness, a short, stout fellow and a blonde, is now thin and lean like a stick, refuses to recognize his wife and child, but insists that he has a wife and several children somewhere else. The man is believed to be insane. All at once an European traveler arrives, marked with a genuine Hebrew face, and claims to be the husband of the wife of the fur dealer. He speaks to the woman in the same language her husband was wont to speak to her; he gives her, and even his parents, who reside in said city, but who, of course, do not recognize him as their son, the most detailed and minutest description of bygone events, and insists upon being the woman's husband and the parents' son. The poor woman is almost in peril of her reason by the effect of the trying ordeal. She incessantly asks, 'Who is this fellow? How does he come to claim to be my husband?' When she hears him speak and does not look at his figure, she is ready to think that he is her husband; but as soon as she looks at him the spell is broken, for, surely, this stranger with the Jewish face cannot be her husband whom she has just nursed in his sickness. But the man continues to press his claim, and tells her the most secret and delicate facts, evidently known only to husband and wife."

Prof. Orlov recollected now all about the occurrence last fall, and to solve this "psychological phenomenon" he decided upon going to New Westminster. To his great surprise he really found there the same black Abraham whom half a year ago he had seen at St. Petersburg. He asked the blonde fur dealer in the Russian language whence he came, and was answered, from Orenburg; and when asked for the name of his wife, he gave the name of a Jewish woman who had called upon him with her husband, now before him, in St. Petersburg. When asked what his name was he answered, "They call me here Abraham Durham, but my right name is Abraham Chorkov."

Prof. Orlov was struck with a strange idea. He reasoned this way: A man abduction could not have taken

place; the bodies have not been changed; one is short, stout and blonde, the other thin, long and dark; and then New Westminster is 2,000 German miles away from Orenburg. Metempsychosis must have taken place.

It must be remembered that on the 22d of September, at the midnight hour both were lying between life and death, the soul of each one must have flown into the body of the other, and thus a complete metempsychosis has taken place; that at the midnight hour of the 22d of September begins the shortening of the days; that the inhabitants of the two cities are antecians, that is, if a spike was driven through the centre of the globe, entering at Orenburg, it would come out at New Westminster, and that when at Orenburg it is 12 o'clock at midnight the time in New Westminster is just 12 o'clock noon.

Prominent men of science are now occupied with this most marvellous occurrence. Prof. Orlov has taken the blonde fur dealer with him to St. Petersburg, whither the woman Chorkov of Orenburg will also be brought, and further developments are now expected.

The Origin of "Old Hickory."

A correspondent tells us how General Jackson got his title of Old Hickory. In the Creek war, during a campaign, the soldiers were moving rapidly to surprise the Indians, and were without tents. A cold March rain came on, mingled with sleet, which lasted for several days. General Jackson got a severe cold but did not complain as he tried to sleep in the muddy bottom among his half-frozen soldiers. Captain Allen and his brother John cut down a stout hickory tree, peeled off the bark and made a covering for the General, who was with difficulty persuaded to crawl into it. The next morning a drunken citizen entered the camp, and seeing the tent kicked it over. As Jackson crawled from the ruins the toper cried, "Hello, Old Hickory! come out of your bark and jine us in a drink."

Insect Destroyers.

A correspondent cares no more for vermin than, according to the old showman, Daniel cared for the lions. "I have not seen a bedbug or a flea in my house," he writes, "for many years. If an army of them were to be brought in, mercury would speedily exterminate them, but I think cleanliness the best and only preventive. The common house-fly I do not molest, believing that it more than compensates for its trouble by clearing the atmosphere of effluvia and the animalcules which always arise from the putrefaction of decaying substances during warm weather. So, also, with the birds, which are quite numerous here during the summer; instead of shooting them, or setting up scarecrows to frighten them away, I throw out every possible inducement for them to build their nests in my fruit-trees.

"The birds capture a large share of the insects in the larval state, and thus the millers are prevented from depositing eggs for a future crop of worms. As to the loss of fruit by the birds, the latter are always sure to be on hand in force in the season of ripe fruit, whether they come early enough to take the worms or not. For the residue of insects which infest my vegetable garden, I find that the laboratory of the chemist furnishes materials fatal to them all, among which white hellebore and cayenne pepper are of the most utility; the bug or worm which cannot find vegetation unflavored with these articles will seek its breakfast elsewhere, and leave my garden unmolested. A few drops of carbolic acid in a pint of water will clean house plants from lice in a very short time. If mosquitoes, or other blood suckers, infest our sleeping rooms at night, we uncork a bottle of pennyroyal, and these insects leave in great haste, nor will they return so long as the air in the room is loaded with the fumes of that aromatic herb. If rats enter the cellar, a little powdered potash, thrown into their holes, or mixed with meal and scattered in their runways, never fails to drive them away. Cayenne pepper will keep the buttery and storeroom free from ants and cockroaches. If a mouse makes an entrance into any part of your dwelling, saturate a rag with cayenne in solution and stuff it into the hole, which can then be repaired with either wood or mortar. No rat or mouse will eat that rag for the purpose of opening communications with a depot of supplies."

The Farmer's Friends.

The swallow, swift, and nighthawk are the guardians of the atmosphere. They check the increase of insects that otherwise would overload it. Woodpeckers, creepers and chickadees are the guardians of the trunks of trees. Warblers and flycatchers protect the foliage. Blackbirds, thrushes, crows and larks protect the surface of the soil; snipe and woodcock the soil under the surface. Each tribe has its respective duties to perform in the economy of nature; and it is an undoubted fact that, if the birds were all swept away from off the earth, man could not live upon it, vegetation would wither and die, insects would become so numerous that no living thing could withstand their attacks. The wholesale destruction occasioned by the grasshoppers, which have lately devastated the West, is undoubtedly caused by the thinning out of the birds, such as grouse, prairie hens, etc., which feed upon them. The great and inestimable service done to the farmer, gardener and florist is only becoming known by sad experience. Spare the birds and save your fruit; the little corn and fruit taken by them is more than compensated by the vast quantities of noxious insects destroyed. The long-persecuted crow has been found, by actual experiment, to do far more good, by the vast quantity of grubs and insects he devours, than the little harm he does in a few grains of corn he pulls up. He is one of the farmer's best friends.

Growing Trees on the Prairies.

In traveling over the grand prairies, go where you may, the one thing wanting—in the eyes of an Eastern man—is timber; something to break the force of the winter and the monotony of the country. You do not see barns here; the stock must live through the severe winters, generally, with little or no shelter, while the horse stable usually consists of some poles arranged for the purpose, covered with straw. Fruit trees are seldom seen. So many hedges appear sickly and imperfect, the traveler concludes the country is at fault.

One farm attracted my attention. There was a forest near the house, and long lines of living fences divided it into splendid fields. Desirous to know more of this, I called on the proprietor and learned that he came here sixteen years ago with scarcely \$100; health not very good, but determined to make a home. He has now 460 acres, three miles of splendid Osage orange hedge fence, without a gap, except gateways; a magnificent grove of black walnut trees, three to eight inches in diameter; an acre of poplar and cottonwood much larger; 1,000 maple trees; 200 apple trees; also peach and pear trees, evergreens, grapes, raspberries and strawberries. I never have seen trees that had grown so thrifty and healthy in New York. One poplar, fourteen years' growth, from a little twig the size of a whip stock, now measures twenty-one inches in diameter one foot above the ground.

Inquiring how such results have been accomplished, I am told but little money has been expended and less time than many spend in gunning. "What do you suppose that mile of hedge cost me?" pointing to the most perfect living fence that I had ever seen. I reply, "One dollar per rod;" but am told the plants cost \$28; setting and cultivation, \$40; entire cost, \$68. No stock was allowed near it till it was three years old, and then the most vicious animal will respect its strength.

The first winter the plants are protected by a mulching of straw, and but little cultivation is afterward needed. Thus this substantial and everlasting fence is produced for 21¼ cents per rod. It also affords a good wind-break for farm stock, as the growth of each season is allowed to remain till the following spring before it is trimmed. The black walnuts were planted and cultivated for two seasons. The young maples cost \$6.75 per thousand, and not exceeding \$10 for setting. They were set last spring. Although the season has been very dry, only six have died. The poplar and cottonwood grove is from forty to sixty feet high, costing at setting not more than the maples. Many apple trees are ten inches in diameter, and have produced several barrels each this season. Choice grafted apple trees, five to seven feet high, cost here fifteen cents each.

I have been thus minute to show how easily a settler in this treeless country can secure fruit, fence, timber, etc.

J. E. W.



THE SAILOR'S DREAM.

Our port we make, I jump ashore,
For weeks to walk a water-worn shore,
Home I push, and at the door.

I catch and kiss my Nancy;
A jiffy—I am snug at tea,
With Jack and Nan upon my knee,
And am I waxy home from sea?

Yes, there sits my own Nancy.

How many a time by day, by night,
I'd fancy this before my sight,
All of us in this warm fire-light;
And is it now, my Nancy?

Yes, here I see the distant pair;
On all I've seen long weeks away;
Now God be thanked for this, I say,
That here I sit with Nancy.

I rub my eyes—what's that secret
"Up to your watch! come, tumble out!"
And is it but a dream about

My Jack and Nan and Nancy?
Yes, here I'm on my water-snow;
Well, all that in my dream was shown,
Thank God, some hour will be my own,
And I shall be with Nancy.

Washington.

The following description of Washington's personal appearance, written in 1718, says an English newspaper, "by a native of America," contains some points not generally known:

"General Washington is now in the forty-seventh year of his age. He is a tall, well made man, rather large, and has a tolerable genteel address. His features are manly and bold; his eyes of a bluish cast and very lively; his face rather long, and marked with the small-pox; his complexion swarthy and without much color; and his countenance sensible, composed and serene. There is a remarkable air of dignity about him, and a striking degree of greatness. He has an excellent understanding, without much quickness, is strictly just, vigilant and generous, an affectionate husband, a faithful friend, a father to the deserving soldier, a gentleman in his manners, in temper calm and collected, a total stranger to dissipation and excess, which have so often corrupted Christians of old dissipation to the loss of the virtues of those of another, in his domestic propensities, he was never known to exceed the bounds of the most rigid temperance."

Happy Accidents.

The cracking of a picture placed in the sunshine set Van Eyck experimenting to produce a varnish that would dry in the shade. He found what he sought, and found beside that by mixing it with his colors they acquired greater force and brilliancy, and required no subsequent varnishing; and so came about the discovery, or rediscovery, of the art of painting in oil. Mezzotinto owed its invention by Prince Rupert to the simple accident of a sentry's gun-barrel being rusted by the dew. Henry Schanward, a Nuremberg glass-cutter, happened to let some aqua-fortis fall upon his spectacles, and noticed the glass was corroded and softened where the aqua-fortis had touched it. Taking the hint, he made a liquid accordingly, drew some figures upon a piece of glass, covered them with varnish, and applied his corroding fluid, cut away the glass around his drawing, so that when he removed the varnish the figures appeared raised upon a dark ground; and etching upon glass was added to the ornamental arts. Alois Senefelder, playwright and actor, thinking it possible to etch upon stone in lieu of copper, polished a slab for the purpose. He was disturbed by his mother coming into his small laboratory with the request that he would jot down her list of things for the wash, as the woman was waiting to test the master away. There being neither paper nor ink handy, Senefelder scribbled the items on his stone with his etching preparation, that he might copy them at his leisure. Some time afterward, when about to clean the stone, he thought he might as well see what would be the effect of biting the stone with aqua-fortis, and in a few minutes saw the writing standing out in relief. Taking up a pelt-bell charged with printings, he raised the stone, took off a few impressions upon paper, and he had invented lithography. The pelt-bell used by Senefelder was long indispensable in a printing-office. A Sampson printer in a hurry to get on with a job could not find his dam, and inked the form with a piece of soft glue that had fallen out of the glue-pot, with such excellent results that he speedily discarded the pelt-bell altogether, and by adding treacle to the glue to keep it from hardening, has upon the composition of which printers' rollers have ever since been made.

Three very different discoveries are recorded to have resulted from the unintentional application of intense heat. Pung attributes the discovery of glass to some merchants traveling with wine, who, stopping on the banks of a river to take a meal, were at a loss for stones to rest their bottles upon. Putting them upon pieces of mire, they smothered their fires, the mire dissolved by the heat, mixed with the sand, and the merchants were astonished to see a transparent matter flowing over the ground, which was nothing else but glass. Charles Goodyear had for years experimented in vain, hoping to deprive india-rubber of its susceptibility to the action of heat and cold. Consulting with a friend on the subject, he emphasized an assertion by fingering a piece of sulphured rubber across the room. It lighted upon the stove, and when he picked it up a few days afterward, he found the intense heat to which it had been subjected had conferred upon the india-rubber just the quality he had so long striven to impart to it. According to some he stumbled upon the discovery in a different manner; one, at any rate, who owned india-rubber was the creation of an accident. A lumberer's tobacco-smoke, smoking lazily at his pipe, neighbors groping among the smoldering ruins of his burned-out shop, noticed that some of them, after trying the contents of certain canisters, carefully sealed their tin snuff-pokers from them. He looked at sun, and found the stuff had come out of the fiery ordeal very much improved in pungency and aroma. Like a wise man he said nothing, but took another pipe, set up a lot of stumps, and before long Black Tom Smoak—otherwise "Irish Blackguard"—was all the place with towers of nasal volition, and for a few years lumbering was a rich man, owing to the accident he thought had ruined him. A would-be alchemist striving to discover what mixture of earths would make the strongest crucibles, one day found he had made gunpowder. Instead of transmuting metals, as he had fondly hoped to do, Bonner transmuted himself: "as if he had been touched with a conjurer's wand, he was no a sudden transformed from an alchemist into a pouter."

Burial Rites of the Arabs, and their Religion.

When a Bedouin dies, the corpse is taken at once out of the tent to a convenient place, washed and shrouded. A bag containing a little corn (called a *shehadeh*) is placed beside it, and it is immediately buried. As soon as it is placed in the grave the friends of the deceased beat upon the ground with a stick, recite the *Fatehah*, and cry out: "Oh, Thou most compassionate! have mercy upon us, Oh, gracious God!" They then tap with a small pickaxe at the head of the grave, and address the deceased in these words: "When the twain Green Angels shall question and examine thee, say, The feaster makes merry, the wolf prowls, and man's lot is still the same, but I have done with all these things. The side-tree is thy aunt, and the palm-tree thy mother." Each one then throws a little earth into the grave, exclaiming, as he does so, "God have mercy upon thee," and the party adjourns to a feast in the tents of the deceased. Another entertainment is given in honor of his memory after the lapse of four months. When a death occurs in an encampment, the women of the family at once go outside the tents, and, taking off their head-dresses, commence a loud and impassioned wailing, which they continue throughout the day.

It has been the fathion with people who do not understand the Bedouin character to describe them as an irregular race, but this is by no means correct. It is true they do not often perform the ostentatious Mahometan ceremonial worship, but I have frequently seen our Arab guides grow silent and contemplative toward sunset as they walked along with their camels, and on riding up to them have overheard the following simple prayer: "Oh Lord, be gracious unto us! In all that we hear or see, in all that we say or do, be gracious unto us! Have mercy upon our friends who have passed away before us. I ask pardon of the Great God. I ask pardon at the sunset, when every sinner turns to Him. Now and forever, I ask pardon of God. Oh Lord, cover us from our sins, guard our children and protect our weaker friends!"

At sunrise they say: "I seek refuge with the Great God from Satan accursed with stones. Deliver me from evil, provide for me and my brethren the faithful. Oh Lord, be gracious unto us! for a people that prospers is better than a people that strives. Oh Lord, provide for me, thou who providest even for the blind hyena!" Before sleep the Bedouin says: "I lay down my head to rest, and the Lord is my security against remote evil, and against present harm." They preface every prayer with the words:—"I desire to pray, and I seek guidance from God; for good and pure prayers come from God alone. Peace be unto our Lord Abraham and our Lord Mohammed."

They believe that when a man rises up from sleep in the morning, the spirit of God sits upon his right shoulder, and the devil on his left. A Suri Arab on waking invariably repeats the exorcising formula: "I seek refuge in God from Satan accursed with stones," sprinkling himself with water as he utters the words. Without this precaution they believe that the good spirit would take flight, and the evil one remains with them throughout the day. At sunset the same ceremony is repeated.

Hydrogen.

BY JAS. P. DUFFY.

Next to oxygen, hydrogen stands of the greatest importance in the list of elements. By the combination of the two, we have the waters of the ocean, of our rivers, etc. Combined with carbon, hydrogen enters into the composition of most animal and vegetable substances; as carburetted hydrogen, a product from coal, it is extensively used as fuel and for illuminating purposes, and the same results are obtained from animal or vegetable oils, through its presence in them.

Hydrogen weighs but little over one-fifteenth part of its bulk of atmospheric air. It is the lightest known body in nature, and for this reason is employed, both in its pure and compound states, to fill balloons.

Hydrogen may be procured, in various shades of purity, from water, coal, oils, etc. The following experiments will afford an instance of this kind.

Put a few iron nails into a glass bottle, and fit into its neck a cork containing a glass tube, one of the edges of which has been drawn to a jet. Add some dilute sulphuric acid to the nails, and fit in the tube. Gas will be given off; but this should be allowed to escape, being mixed with air, it would explode or perhaps burst the bottle if the gas were ignited. After sufficient time has elapsed to remove all the air from the bottle, apply a light to the jet, when the gas will burn with a yellowish colored flame.

Hydrogen may be obtained from water, as follows: Steam from water is passed through an iron tube heated to redness, and by this means decomposed. The result of the decomposition, hydrogen, may be collected by fitting a bent pewter tube to the end of the iron one.

Hydrogen is obtained in the purest state by decomposing water by means of electricity.

The most important compound of hydrogen is the well-known liquid, WATER, which, in its purest state, consists of eight parts of oxygen united with one part of hydrogen, by weight. The gases unite, by bulk in the proportion of two volumes of hydrogen to one of oxygen.

The following experiment illustrates the production of water by the union of its elementary constituents:

Hold a cold glass vessel over the jet of the bottle described in the preceding experiment, whilst the gas is burning. The vessel will soon become coated with dew, owing to water being produced by the combustion of the hydrogen in contact with the oxygen contained in the surrounding air.

The Potato.

The potato is more important as a variety of human food, than any other root we cultivate, and is remarkable for being grown over a greater range of latitude than any other cultivated plant.

The potato was scarcely known until the seventeenth century, and was not extensively cultivated before the middle of the eighteenth. The potato plant is a native of South America, and its native soil is Chili, where it is called *maglia*, and Humboldt affirms that it was unknown in Mexico until after the Spanish conquest.

It has been stated, and is believed by many, that the first potatoes grown in Europe were planted in Walter Raleigh's garden in Ireland, but this is erroneous. At Offenburgh, near Baden, in South Germany, there is a monument to Sir Francis Drake, as "The first introducer of the potato in Europe." By the way, it may be mentioned that Frederick the Great had to compel his subjects to plant it before he could get it into much use, and the use of this invaluable plant was vehemently opposed in France. At last Louis XV. wore a bunch of its flowers in the midst of his courtiers, and the consumption of the root became universal.

In point of fact, the potato entered Europe by two different routes. It was carried from Peru to Spain, and thence into Italy and Germany, where laws were passed to enforce its cultivation. It is probable that when Raleigh came from his American voyage of 1589 he brought tobacco and the potato with him.

Drake visited Virginia a few years later, and brought over the sweet potato, which abounded in Virginia and North Carolina, and was used in England as a delicacy long before the potato which we ordinarily have was known.

Sir Francis Drake returned from navigating the globe, during which time he visited Chili, in 1570, full seven years before Raleigh landed on the Atlantic coast, and it is quite certain that he brought over the potato.

A legend in regard to the origin of roasted potatoes runs that Raleigh planted some of the tubers in his garden in Ireland, just as he had seen it done in Virginia, and had to return to England before the plant had reached maturity. His Irish retainers, left in charge of his house and garden, noticed the seed-apples which in due season the plant produced, tasted them, and pronounced them unfit for use by man or beast. At that time the process of burning the grafts, or weeds, was practiced in Ireland. It was used by Raleigh's servants to clear the garden of the withered stalks of the potato plants. In this burning the ground became heated, and the gardener, turning the earth up with his spade, found the tubers cooked and pleasant to the taste. Roasted potatoes got wind, and most every person in Ireland planted potatoes.

Traveling on the Plains.

BY W. R. SMITH.

Morning—sunrise on the plains. Once more we are in our saddles, moving along over a level stretch of country in a southwest course. One great feature of the plains is the scarcity of timber, and which is more noticeable than any other—one by one the different species of trees disappear, until only one is left, and this is the celebrated cottonwood (*Populus Canadensis*), which is known to every traveler of the plains, and is always welcomed with joy and delight, as it is very seldom found far away from the water courses. A traveler can go for days on the plains and not see enough of timber to make a riding switch. Occasionally there is a grove or clump of trees, to break the monotonous sameness of the boundless sea of verdure, which glistens in the sunshine, presenting the appearance of molten silver.

While riding along over the plains we would often pass through what is known as a "prairie dog town." As we would move forward to get a closer view of their town they would set up a sharp, shrill barking, when an alarm was passed from one to another, and they disappeared, turning a somersault into their holes, and as we passed through their village not a hair of one did we see; but by-and-by a cautious old one would poke the end of his nose out of his hole to see what we were about, and on seeing us he would instantly disappear, and another at a greater distance would come out entirely, but catching a glance of us he would make his feet twinkle and plunge back again into his hole. After passing over this underground community and getting some distance away, they would come out of their holes and set up a perfect bedlam of noise, no doubt at our invasion of their town. These prairie dogs are of the cony kind and about the size of a common rabbit; they burrow in holes in the ground, and it is supposed by some that a species of the prairie owl and rattlesnake also make their abode in the same hole, but of this assertion I will say nothing, not knowing, although I have often seen these small owls setting around these holes, but as for the rattlesnake, I have reasons to doubt it, unless these towns are like all others, it being a very difficult matter to keep bad company out of any society. After a few days' travel we one evening encamped on Medicine Lodge Creek, in Southwestern Kansas. This is a very fine country, although it was then without an inhabitant, but now the cabins of the homestead pioneer can be seen dotting the prairies of this beautiful valley. This country has no roaring of classic waters, and no sombre shadows of gigantic mountains to give it a goodly name, but it has the pure and bracing air which gives life and vigor, with a glow of health, that is unknown in the crowded cities. This country is pre-eminently a stock-raising one, the broad prairies are covered with fine heavy grass which during the fall is cured by the sun into hay; a plentiful supply of water, and short winter seasons, which are generally mild and dry. Contagious diseases, so prevalent among stock in other places, are unknown in the Southwest, except when brought with other herds from abroad. The large droves of cattle, owned by the Indians in southern Kansas and the Territory, feeding the entire winter on the prairies, prove successfully that this country is unsurpassed in stock-raising.

From Medicine Lodge we took a western course. It was evening when we went into camp near a small stream that flowed into the Cimaron. Far off over the plains could be seen a party of hunters, who were after a herd of buffaloes. The hunters were making it lively and exciting times, for the buffaloes particularly. We could see that they were firing a volley almost constantly, by the small white puffs of smoke that curled away from their guns, the distance being too great to hear the report. A short distance from us was a drove of antelope feeding on the rich green pasture—they have not seen us yet, or you may rest assured they would not be there very long, for they are a shy and timid animal and will scamper off over the plains almost as soon as seen.

As we traveled along we noticed that from the appearance of the country we were approaching a large water course, and such was the case, as late one evening the beautiful valley of the Cimaron lay spread out before us in all its loveliness. There are but few objects that present an aspect of more surpassing beauty and grandeur than the far lengthened, wide-expanding prairie. The

gigantic mountains, the mighty ocean, the beautiful hills arrayed in Nature's green—all these afford a hundred of magnificent scenes; but the face of a prairie situated in a valley smiles with indescribable loveliness. It is a rapturous vision to gaze upon these great gardens of the West; one would think that they were untouched by the great spoiler, so fresh do they seem from the Creator's hand.

All around us Nature is undisturbed, and it is so still and quiet along the valley that a person is almost made to believe that the world no longer holds a thing of life. The hills are thickly dotted with clustering fir-trees and cedar, making the beautiful appearance of many evergreen mountains. The banks of the river were lined with cottonwood, while the placid waters reflected back their forms with added lustre and brilliancy. Down on the banks of the river we pitched our tents in a grove of trees which cast a pleasant shade around, while the green grass was thickly studded with sweet wild flowers which encumbered the air with their fragrance, and just before us, almost at our very feet, flowed the peaceful waters of the Cimaron river.

Life Considered as a Mode of Motion.

Life is motion; death is rest; such is the simple definition which has obtained for the two states which interest mankind the most. Motion is so interwoven with life, that we have no hesitation in designating what we call physical life as a form of motion of matter through space. The arms move—we strike; the legs move—we walk; the heart moves—we live; the blood moves—we can think, feel, act; when motion ceases, and rest, absolute rest, returns, we are dead. In sleep the heart and blood moves on; the limbs are apparently still; but the close observer detects plenty of minute motions in the sleeping subject. The object of sleep, as far as can be determined in the present advanced stage of science appears simply to be that the nervous system may have a chance to recuperate its destroyed cells from the blood—a process which, as far as the nerves are concerned, appears to be suspended during waking hours. We are dormant while nervous life moves on, and grows, until at last it becomes so strong as to rouse our bodies from the torpor in which we have fallen, and we can no longer sleep, again awakening to rise and strive to get rid of the accumulated force, which is the result of sleep—to reduce ourselves again to nonentity.

Perchance we acquire a part of our energy not so much from the absolute aggregation of nervous matter from the blood, as from the fact that while we have remained perfectly quiet the motion of the blood has increased force in our bodies—hence lying still without sleep frequently rests people. A thing in motion like blood which moves not freely gives force, which is simply motion in another form with everything it comes in contact with. As Prof. Tyndall has clearly shown. Matter in motion stopped generates heat, as a penny struck by a hammer; the motion of the hammer stops but the penny is hot. The motion of our blood through our bodies is subject to more or less friction; hence this retardation of its motion must generate either heat or some other form of force. In this case we call it *life*, as is evinced by the activity of every one after a rest.

In the economy of our bodies we find everywhere there forms of motion heat, and that more subtle force, electricity. Life in fine, physically speaking, becomes—like heat—a form of motion. But what of the mind which engages the attention of so many learned persons?

What is mind? We give the general name of mind to the operation of thought of every kind. What is thought? Thought is motion again; but how? The brain of a child is blank until it grows sufficient to receive what we designate impressions. Impressions may perhaps be more clearly rendered photographs of what it sees; of what it hears; of things it feels. Day by day, year by year until a late period of life, these photographic impressions are taken by the brain and stored and numbered for future use by the will. When we read anything descriptive, we instantly call into our aid some impression of similar scenes we have ourselves seen; or if we have not seen the thing in nature, art with a picture or engraving furnishes us the same thing for our use. If we have neither seen nor heard of anything of the nature we read of, as a whole, we at once

attempt to understand the sense by combining parts of impressions into one picture; and when we can do this, so as to make a picture with no incongruities alarming to our education, we think we understand, though often we find afterwards we have been mistaken in our estimate. Hence we find that we ordinarily think by combining impressions and making a new one which is in turn photographed on the brain for future use in whole or in part. To combine these impressions we have to move them to meet other impressions; hence, thought is a mode of motion. At night when the will is dormant these brain photographs by being without their governor, as it were, often move themselves into the queerest and most fantastic combinations, producing what we call dreams, the moment the will is again called into action they at once return to their own place; hence the difficulty of catching the exact impression of a dream as the will finds it almost impossible to combine them into that chaotic confusion that they present themselves in; as hard as it would be to get the same picture with a kaleidoscope by continued shaking.

Persons vary considerably in their power both of receiving impressions and the facility with which they can move and combine them. A person is said to have a good memory, when his brain receives many impressions deeply and permanently; while another man may have a poor memory, able only to hold a comparative few of the impressions he has received, but still having a faculty of moving those few with great speed, and combining them to be of use. Some persons are slow thinkers; that is, they can move their impressions very slowly together, and are slow at combining parts, though at the same time they are often blessed with wonderful memories of whole impressions of things heard or seen, but they recapitulate them slowly, but generally with accuracy. Men of vivid imagination, those who generally write works of fiction, are persons whose brains have unusual power in the way of moving impressions; though the combination may be faulty still they are often startling from the novelty. Ofttimes this class of persons drift into the bad habit of allowing their brains to combine impressions in the manner persons do when they sleep, and then transcribing the trash thus composed for the benefit of the public, calling it a book. A very vivid imagination, a wonderful memory, a great facility of motion among the brain impressions and a powerful will, are the necessary adjuncts of a great man, and which all great men have possessed from time immemorial.

Having thus briefly given a rational explanation of the process of thought—we may before leaving this part of our subject, say a few words about the memory. It was long ago discovered that memory was but a physical attribute, that whatever destroyed the store-house of impression, i. e., the brain, destroyed the memory. In old persons this fact is also unmistakable. As the tissues harden they no longer receive the impression perfectly; hence, an old person remembers not what happens to-day or yesterday, but what happened years ago, when his brain took its photographs in the strength of youth. How careful we should be then to fill our brain with pleasing impressions for use in old age, when the things of the day can no longer interest us?

But what of the will? The will is the source which puts our bodies to use and moves the impressions. It is the image of God, who especially declares it was made in his image. It stands at the centre of the finite body and its surroundings, as God does of the infinite. We should see that we make good use of the curious and complicated machine which has been committed to our care, and that through it and by the experience it gives us it may enable our wills to acquire that self-control which is an absolute requisite for future usefulness in God's Kingdom.

Alcohol.

BY JAS. P. DUFFY.

This well-known liquid is the product of the vinous fermentation of grape-sugar. It is sold in commerce as spirits of wine, and to its presence in brandy, gin, rum, whiskey, wines and beer, their peculiar effects of intoxication are due. Alcohol is readily produced by adding yeast to a solution of sugar in water, at a temperature varying from seventy to eighty degrees Fahrenheit. Carbonic acid is largely disengaged, and when

fermentation is complete, and the liquid has become clear, it must be distilled in a retort, the first portions only being retained. The product is alcohol largely diluted with water. By repeated distillation with sub-carbonate of potash or dry lime, the water is separated, until the pure alcohol is obtained. In its pure state alcohol boils at a temperature of 173 deg. Fahrenheit, and is converted into a vapor which is readily condensed and which, like the liquid itself, is highly inflammable. "Proof spirit," such as is referred to in the excise laws, contain half pure alcohol, the remainder being water.

The uses of alcohol are very numerous in arts and manufactures. From its solvent powers it is used to make varnishes, etc., but the most important use is that of beverage.

The fermentation of saccharine matter leads to the production of alcohol in all cases, but the commercial products differ according to the source of the sugar. Thus, whiskey is obtained by the fermentation of the sugar of malt, as in beer. Rum is produced when coarse cane-sugar is employed. Brandy and wine generally are the produce of the grape. The difference of these liquids, then, are owing to the admixture of the alcohol they contain, with other substances dissolved and held in solution by it. In corn spirit, or that obtained from potatoes, a coarse offensive oil is found, which gives the peculiar smoky flavor of whiskey. In wines the peculiar and distinguishing taste is due to the presence of an ether, which at the same time differs in each wine and gives it its characteristic flavor, and so on.

Perfumes are manufactured by dissolving various essential oils in alcohol of various strengths, and are then subjected to distillation in order to insure complete mixture.

The Enchanted Mountain.

In the State of Georgia is a large hill known as the Enchanted Mountain. There is nothing remarkable about this mountain until you get on the summit, when human tracks, or impressions in the solid rock which look like human foot-prints, may be seen. There are one hundred and thirty-six foot-prints and a few hand-prints found on this rock. The smallest foot-print is four inches in length and perfect in shape. The largest is seventeen and a half inches in length and seven and three-fourths inches wide. This one, unlike the others, has six toes. By whom these tracks were made is one of the many mysteries which we can never fathom. The Indians in that vicinity had many traditions concerning them. One of these is curious, for it shows that they had a vague idea of Noah's flood. The story is, as it has been handed down from father to son for many ages, that this rock was the landing-place of the great canoe; and that the foot-prints were made by the people coming from the great canoe and stepping on the rock, which had been softened by the long inundation.

Geology shows us that these tracks were made in a kind of mud, and that this mud afterwards hardened into rock. And as the top of the mountain would be the first to show itself above the surface when the waters which once covered the earth subsided, it may be that this island—for it was then an island—was visited by a party of Aborigines who landed, leaving their foot-prints in the soft mud, which in the process of time was changed to solid rock. But this theory is purely imaginary. We do not know, nor can we ever hope to know, who made the tracks.

Another Indian tradition is that a great battle was once fought there, and that the largest track is that of the victorious chief. This is essentially an Indian tradition, as their ideas of mental greatness were circumscribed by physical size. They did not consider that the size or activity of the brain had anything to do with it. They regarded physical size and strength as the only necessary qualifications in a commander, and hence their reason for regarding the largest foot-prints as having been made by the victorious chief.

SOLITUDE AND SOCIETY.—It is easy in the world to live after the world's opinion; it is easy in solitude to live after your own, but the great man is he who, in the midst of the crowd, keeps with perfect sweetness the independence of solitude.—EMERSON.

sweep the fragrant savannas of the sunlit South and the eternal solitudes of snow that mantle the ice-bound North. [Laughter.] How these circles were produced is perhaps one of those primordial mysteries that the most skillful paleologist will never be able to explain. [Renewed laughter.] But the fact is, sir, Duluth is pre-eminently a central place, for I am told by gentlemen who have been so reckless of their own personal safety as to venture away into those awful regions where Duluth is supposed to be, that it is so exactly in the centre of the visible universe that the sky comes down at precisely the same distance all around it. [Roars of laughter.]

"My relation is simply that of trustee to an express trust. And shall I ever betray that trust? Never, sir! Rather perish Duluth! Perish the paragon of cities! Rather let the freezing cyclones of the bleak Northwest bury it forever beneath the eddying sands of the raging St. Croix!"

Phosphorus.

BY JAS. P. DUFFY.

Phosphorus, when perfectly pure, is a transparent, colorless wax-like solid, which when freshly cut, emits an odor like garlic. At the ordinary temperature of the air, and still more at higher temperatures, it shines with a greenish-white light, as may be seen by placing it in the dark; hence the name, from two Greek words, signifying light-bearing.

But a few years ago, it was merely a chemical curiosity; it has, however, lately become an important article of commerce, and in the making of matches has given thousands of persons employment.

Phosphorus occurs abundantly in nature, although the greater part used is obtained from bones, which contain a large amount of phosphate of lime. To obtain the phosphorus, the bones are first calcined and sulphuric acid added thereto. This decomposes the phosphate of lime. The liquid is evaporated to the consistency of a syrup and mixed with charcoal. The mixture is then strongly heated in a retort, by which the phosphoric acid is decomposed, and the phosphorus distilled over as a wax-like substance. It is received in vessels containing cold water.

Phosphorus combines readily with oxygen, and when in contact with air it is all the while undergoing slow combustion. If this slow combustion be increased in any manner, the phosphorus will burst into a flame and be rapidly consumed. On account of this extreme inflammability it should always be kept in bottles containing water, so that no part of the substance should be above the surface of the liquid. It should never be cut except under water, nor touched by the finger, as the burn it produces is very serious and difficult to cure.

A very curious application of phosphorus may be made by its solution in bi-sulphide of carbon, to which a very little wax is added. If the liquid so produced be poured on paper, cloth, etc., after a short time such will burst into flame. It has been proposed to employ this liquid for purposes of warfare, by enclosing it in shells to be fired in the usual manner. On such coming in contact with the sails or hull of a ship, they will at once break, and, spreading the liquid on all sides, cause the destruction of the vessel.

By means of a mixture of phosphorus, sulphur and chlorate of potash, the ordinary lucifer match is made, which, by mere friction, affords, as is well known, our chief source of artificial light and heat.

The most important combination of phosphorus with oxygen is that known as phosphoric acid. This is produced by the combustion of phosphorus in oxygen gas, and is of great importance in animal economy. Combined with lime it forms the chief constituent of the bones of animals.

Phosphorus combines also with chlorine and iodine, forming definite compounds, which, however, do not possess any special interest.

☞ If we could see things as they are—if we were not deceived by the masquerade of this poor life—if we were not so easily taken in by the masks and dresses of those who act in this great drama, be it comedy or tragedy—if we could but see what the men are behind the scenes, penetrate their hearts, watch the inner motions, and discern their secret feelings, we should find but few who could bear the name of "blest."

The Estate of the Richest Man in the World.

Baron Rothschild's residence and estate at Mentmore is described as one of the finest and most extensive in England. It contains some 20,000 acres of the finest land in Buckinghamshire. It has garden, greenhouses and graperies so arranged as to furnish fruit every month in the year. Oranges, pineapples, figs, bananas, and other tropical fruits are grown in abundance. When the Baroness is absent, yachting in the channel, or at her London house, orders by telegraph are sent to Mentmore daily for the supplies required. The vases in the fountain and Italian gardens cost each £1,000. The statuary is all of the most costly kind, executed by the first masters. The great hall, which is about 20x30 feet, is filled by vases and statuary. Its contents must represent a value of not less than £100,000. It takes not less than three hours to pass through the rooms. The finish is exquisite, and the furnishing of each sumptuous. Some idea may be formed of the whole from the furniture of a single bed-room, one of the many guest chambers, costing £25,000 or £30,000. In the dining or baronial hall are furnishings exceeding £200,000. Costly cabinets of the time of Louis XIV., of ebony, inlaid with ivory or gold, diamonds, rubies, and all sorts of precious stones; walls hung with the costliest tapestries of the time of Louis XVI., or covered with the richest needle-embroidered satin, may give some idea of the wealth lavished on this more than princely mansion. The costliest paintings adorn the walls, and the most skillful and expensive workmanship is displayed on the ceilings. The idea of the Baron seems to have been to build and furnish a mansion such as no other person in England, except, perhaps, the Duke of Westminster, could expect to rival. The stud is said to contain more high-bred horses than any other in the world. It embraces thirty-five hunters and as many racers, none of which are less in value than £500, while many of them run up to thousands.

The Rabbit's Tracks.

The reason a rabbit makes but three tracks in the snow is thus explained: In a deep snow a rabbit cannot run because its body is too long and its legs are too short. Were it to attempt to leap with its hind legs spread apart like a dog's, which are no longer, it would only flounder like you do when trying to grope your way upstairs, after a late return from the "club." To acquire greater momentum and speed through the snow, the rabbit places one hind foot upon the other, and thus concentrating the strength of both hind legs at one point instead of two, it projects itself through the entangling drifts. Of course its fore feet are spread apart to receive the descending weight of the body, else it would tumble sidelong in the snow. As it leaps on to its forefeet it quickly places its lapped hind paws in another spot, and pushing from behind makes another leap, and thus it goes on for a great distance. And this is the reason why a rabbit leaves only three tracks in the snow.

Spare the Birds.

In support of the recommendation relative to the preservation of small birds necessary to horticulture, the figures of a careful observer will show the great losses incurred by the destruction of only one brood. A bird's nest contains, on an average, five eggs or five young birds. Each young bird eats daily fifty flies or other insects, and this consumption lasts four or five weeks. Now take the average of thirty days, and it will be found that the number of insects destroyed by each brood, in these thirty days is 7,500. Each fly eats daily, in flowers, leaves and buds, a quantity equal to its weight, until it has attained its maximum growth. In thirty days it will have eaten one flower a day—a flower which would have produced a specimen of fruit. Thus in thirty days, each fly having eaten fruits, the 7,500 flies that a brood of birds would have destroyed causes us to lose 225,000 apples, pears, peaches and other fruits. This is a strong argument in favor of the preservation of birds, a measure alike to the advantage of the producer and consumer of fruits.

What Invention Has Done.

Necessity is said to be the mother of invention. That may be, but time is also. During the years when men were worked for twelve and more hours, but few and crude inventions lightened labor, and this because mechanics were more concerned for what they should eat and wherewithal they should be clothed, than in studies to adapt machinery to mechanical uses. The dates of the Patent Office will show that most inventions of value have been made since the inauguration of the ten hour system, and now the machinery of the country is equal to the labor of twenty-eight million men. Hitherto ten hours' labor has been necessary for the wants of civilization, because of the absence of machine labor, and the presence of so many men living by their wits, and at the expense of the industry of the country. Now we have machinery by which men are enabled to do ten times the work that was or could be done by our fathers fifty years ago, and some inventions do not fall short of doing one hundred times the amount of work that was then accomplished. There is no longer a necessity for so much work; the wants of the world do not require it; grain can be raised and made into bread with a twentieth of the labor; a ship can be built in less than one-fourth of the time; a house can be erected and ready for use in one-tenth of the time, and less than a tenth of the men can do it; one man can make more shoes and boots, and hats and clothes, than twenty men could then have done; the railroads will carry our goods and produce two thousand miles and across the continent, in less time than our fathers could haul their grain to profitable market; the daughter of twelve years of age can do the washing while her mother gets breakfast and takes care of the baby; the accomplished young lady can churn the butter while she is hemming a handkerchief, and can make a dress in less time than her grandmother could have basted it together. General Grant's father took ten months to tan leather that can be done in six days; men of genius and late inventors now furnish fuel from the vapor of crude petroleum cheaper than a man can afford to dig the coal or chop the wood, if he has plenty at his door; we can transmit the force necessary for any kind of machinery from the rocky banks of a river to a suitable valley for manufacturing purposes cheaper than the grading can be done for buildings at the source of power; framed doors, window blinds, or sashes, can now be had in less time than our grandfathers could have dressed the stuff; and so on throughout the entire catalogue of industrial pursuits.

The Sun-Dial.

Gotthold was once looking at his sun-dial to ascertain whether his clock was right, and, as usual with him, he asked himself what he could learn from it besides the time of day. "Dials," said he, "are doubtless very useful for the purpose of ascertaining the time, but if the sun does not shine on them, they are of no more worth than a piece of black slate."

With us it is exactly the same. Without the grace of God, or deprived of the quickening and enlightening influences of His Holy Spirit, we, too, are good for nothing, whatever our talents and position in life may be. Those who seem to be wise are not so without heavenly rays to illuminate them, and the most apt to go wrong when their understanding and judgment are not enlightened by the beams of grace. The mind often falls into the most fatal errors when they fail to humbly seek to catch their wisdom from the rays of the Son of Righteousness.

To-day the sun shines, and the dial is an infallible guide; to-night it veils its face, and what can the dial tell about the hour? So our most ingenious intellects are uncertain when no longer drawing their light from God. Not only may they while seeming to be correct lead others astray; but without God's aid would even lose the light of reason as they often do, and with it the respect of those who often before profited by their reflected wisdom.

As in a letter, if the paper is small and we have much to write, we write closer; and so let us learn to economize and improve the remaining moments of life. "Work while it is day; the night cometh when no man can work."

Grave Robbers.

If you have ever had occasion to take up a vine that had been some years in growing, you will often find that its roots, instead of growing in a regular, orderly way, have hunted around for some especially fat feeding ground, and there have feasted in riotous living. A grape vine which had grown at the end of a wood-shed was once transplanted, and was found to have thrown out its principal roots to one side where a basket of bones had been buried, and there it had made such a network of rootlets that it was necessary to take up bones and all. How did the vine know that the bones were there?

In the biography of Samuel J. May we find a curious instance related illustrating this peculiarity of the growing world. He was one day taking a walk when he passed the tomb of an old friend named James Otis. The door of the vault was open and he passed in. Curiosity impelled him to look into the mouldering coffin, and he found it entirely filled with the fibrous roots of the elm, especially thick and matted about the skull. Stepping out he looked up at a noble elm which flourished gloriously above the tomb, and he felt that there were the true remains of his old friend.

It was almost sacrilege for those irreverent Bostonians to burn up James Otis for fire wood, but they did it.

Perhaps the most curious instance of such a transformation is in the case of Roger Williams, whose grave was invaded by the root of an apple tree. The main branch struck into the coffin at its head, rounded around the skull, branching off at the shoulders along the two arms. Another part followed the spine, branching at the hips, and even turning up at the feet. The whole is preserved in a New England Museum. It is a question of some little interest who eat the apples that grew on that tree from year to year.

No doubt if the records of thousands of graves could be brought to light many such instances would be found.

CORA BELLE.

Marbles.

The chief place of the manufacture of marbles—those little pieces of stone which contribute so largely to the enjoyment of boys—is at Oberstein, on the Nahe, in Germany, where there are large agate mills and quarries, the refuse of which is turned to good paying account by being made into small balls, employed by experts to knuckle with, and are mostly sent to the American market. The substance used in Saxony is a hard, calcareous stone, which is first broken into blocks, nearly square, by blows with a hammer. These are thrown by the hundred or two into a small sort of mill, which is formed of a flat, stationary slab of stone, with a number of eccentric furrows upon its face. A block of oak, or other hard wood, of the diametric size is placed over the stones and partly resting upon them. The small block of wood is kept revolving while water flows upon the stone slab. In about fifteen minutes the stones are turned into spheres, and then, being fit for sale, are henceforth called marbles. One establishment, with but three mills, turns out sixty thousand marbles each week.

Skin of Fur-Bearing Animals.

The obvious difference between the fur of animals in Summer and Winter is found by Donhoff to be associated with an equally striking difference in the texture and thickness of their skin. Thus, the average weight of an ox-hide in Winter is seventy pounds; in Summer fifty-five pounds; the hair in Winter weighs about two pounds, and in Summer about one pound, leaving fourteen pounds to be accounted for by the proper substance of the skin. These differences are quite as decided in foetal animals as in adults. Calves born in Winter have a longer and thicker coat than those born in Summer; moreover, there is a difference of more than a pound in the weight of their skins after the hair has been removed. Similar facts may be observed in the case of goats and sheep. That these differences are not to be ascribed to any corresponding change in the diet and regimen of the parent animals, is proved by the fact that they are equally manifest in the young of individuals kept under cover, and on the same food all the year round.

THE REVENGE OF THE SWALLOWS;

OR,

*How Baron Cuvier became Interested
in Natural History.*

"They fled our winter clime
To sunny lands of Spain;
They flew to us again,
Ere bloomed our summer time."

tened to line the interior with feathers, wool and dried leaves; and then winging their flight to a neighboring wood they continued absent for several days.

As, however, the nest was in the course of building, two sparrows looked on with great curiosity, and no sooner had the swallows departed than they took possession of the vacant domicile, always leaving one on the watch, with his sturdy bill protruding through the entrance.



SWALLOWS.

The young tutor of the children of Count Hericy, residing in an old chateau in the Pays de Caus, at Figuainville, was accustomed early in the morning to inhale the fresh air of the garden on which his window opened. One morning he observed two swallows building a nest in the outer angle of his small casement; the male bringing moist clay in his beak, which the hen kneaded together, and with straws and bits of hay formed their cosy home. As soon as the frame work was completed, the pair has-

At length the swallows returned, when the cock made an indignant attack on the intruders, only, alas! to endure a bleeding head and ruffled feathers; and so, after a short colloquy with his mate perched on a green bough, they withdrew again together. On the return of the hen sparrow, the young tutor thought that her husband gave her an account of the attack and repulse, over which they chuckled; and then he saw them sally forth and store up a large stock of provisions, with *two* beaks ready to de-

tend the entrance. But now cries resounded in the air; crowds of swallows began to assemble on the roof; in the midst he perceived the expelled builders, recounting their wrongs to each fresh arrival; and before long two hundred of these birds were assembled. Suddenly a host of them flew against the nest—still defended by the two sturdy beaks—each having his bill filled with mud, which he discharged against the entrance, and then gave place to another to follow up the assault; while this they managed to accomplish within a short distance from the nest, and keeping well out of the reach of the besieged sparrows. The swallows now heaped mud on the nest till it was completely covered, and but for the desperate efforts of the sparrows, who contrived to shake off some of the pellets, the opening would have been quite choked up. But brief indeed was the interval; for a party of swallows perched on the nest, smoothed and pressed down the clay over the opening, and soon hermetically closed it, when loud cries arose of vengeance and victory.

Another work was yet to be done. The swallows hurried away for fresh materials; of these they constructed a nest over the blocked-up entrance, and in two hours it was occupied by the ejected swallows. No wonder the young tutor looked on with increasing interest; he observed the development of the young brood; the male bird teaching them how to seize their prey in the air; how to fly high when all was still, and the flies sported aloft; and how to keep near the ground when a storm was coming, for then all insects seek a shelter. So passed the summer, and autumn came. Crowds of swallows once more assembled on the roof of the chateau; the little birds were placed with other little birds in the midst of the troop; and ere long they all took flight towards the east.

"And scarlet and geranium beds glow on the smooth green lawn; The dahlias glisten with the dews of eve and early dawn; The ivy round the old gray church gives shelter to a band Of gathering swallows taking flight toward a sunnier land."

Spring came, and two swallows, lean and with ruffled feathers, came with it, and were recognized as the parents of the last year's brood; they repaired and re-lined the nest, and then set out on an excursion as in the previous season. The morning after their return, a hawk pounced suddenly on the cock, and would have borne him away had not the young tutor mortally wounded the assailant with a fowling piece. The swallow was seriously wounded by the talons of the hawk, and a grain or two of shot had grazed his breast and broken one wing; but the kind young man dressed his wounds and replaced him in the nest, while the poor hen fluttered sadly around her mate, uttering piercing cries of distress. In spite of every attention he soon died. From that moment the hen never left her nest, refused the food that was constantly offered her, and expired five days after her beloved mate. These passages in a bird's history awakened in the mind of that young man an inextinguishable interest in natural history; and often did he relate them when he had attained a world-wide fame as Baron Cuvier, the great naturalist.

"The swallow," says Sir H. Davy, in his "Salmonia," "is one of my favorite birds, and a rival of the nightingale; for he glads my sense of seeing as much as any other does my sense of hearing. He is the joyous prophet of the year—the harbinger of the best season; he lives a life of enjoyment among the loveliest forms of Nature; winter is unknown to him; and he leaves the green meadows of America in autumn for the myrtle and orange groves of Italy and Spain, and for the palms of Africa. He has always objects of pursuit, and his success is sure. Even the beings selected for his prey are poetical, beautiful and transient. The ephemera are saved by his means from a slow and lingering death in the evening, and killed in a moment, when they had known nothing of life but pleasure. He is the constant destroyer of insects—the friend of man; and, with the stork and the ibis, may be regarded as a sacred bird. The instinct which gives him his appointed seasons, and teaches him always when and where to move, may be regarded as flowing from a Divine source; and he belongs to the oracles of Na-

ture, which speaks the awful and intelligible language of a present deity."

"Five or six of these birds," says Bewick, "were taken about the latter end of August, 1784, in a bat fowling-net at night; they were put separately into small cages, and fed with nightingales' food. In about a week or ten days they took food of themselves, and seemed much strengthened by it; they were then put altogether into a deep cage, four feet long, with gravel at the bottom; a broad shallow pan was placed in it, in which they sometimes bathed. One day, Mr. Pearson observed that they went into the water with unusual eagerness, hurrying in and out again repeatedly, with as much swiftness as if they had been suddenly seized with a frenzy. Being anxious to see the result, he left them to themselves about half an hour, and, going to the cage, found them all huddled together in a corner, apparently dead; the cage was then placed at a proper distance from the fire, when only two of them recovered, and were as healthy as before; the rest died. The two remaining were allowed to wash themselves occasionally for a short time only; but their feet soon after became swelled and inflamed, which Mr. Pearson attributed to their perching, and they died about Christmas; thus the first year's experiment was in some measure lost. Not discouraged by the failure of this, Mr. Pearson determined to make a second trial the succeeding year, from a strong desire of being convinced of the truth respecting their going into a state of torpidity. Accordingly, the next season, having taken some birds, he put them into the cage, and in every respect pursued the same method as with the last; but, to guard their feet from the bad effects of the damp and cold, he covered the perches with flannel, and had the pleasure to observe that the birds thrived extremely well; they sung their songs during the winter, and soon after Christmas began to moult, which they got through without any difficulty, and lived three or four years, regularly moulting every year at the usual time. On the renewal of their feathers, it appeared that their tails were forked exactly the same as in those birds which return hither in the spring, and in every respect their appearance was the same."

It has been, however, sagaciously conjectured by Dr. Foster, that those birds which have been found in a state of torpidity, in the crevices of rock, in the holes of old decayed trees, in ruined towers, and under the thatch of houses, had, owing to some accident, been hatched later in the year than ordinarily, and consequently had not acquired sufficient strength to undergo the fatigue of a long journey on the wing, at the time when the migration of the rest of their species took place; and that, to shelter themselves from the inclemency of the weather, they had sought retreats wherein, from cold and hunger, they had sunk into a state of torpidity.

Burns pathetically asks:—

"'Tl'k hopping bird, wee helpless thing,
Which, in the merry months of spring,
Delighted me to hear thee sing,
What comes o' thee?
Where wilt thou cover thy chattering wing,
And close thy e'e?"

The answer to this question may be given with tolerable certainty in the case of the swallows and other birds of their family. They start in autumn, some due north and south, over the Continent of Europe and Africa, crossing where the strait is narrowest; others take a more easterly course, by Malta, Sicily and Italy, and so on to Egypt. The winter is spent by them in the warmer climates. The tenth of May may be taken as the average date of their return to this country, and in England they arrive about a month earlier. With reference to the state of exhaustion in which they arrive in England, Sir Chas. Wager gives the following account: "As I came into soundings in our Channel, a great flock of swallows settled on my rigging; every rope was covered. They seemed almost famished and spent, and were only feathers and bone; but being recruited with a night's rest, took their flight in the morning."

It appears likely, however, that the great object of migration is the same; to find food in other climes for the young broods, which the season of autumn denies them in ours.

Though the flight of the bird is low, it is extremely rapid, while the observer is often astonished by its sudden turns and evolutions. All day long, as if absolutely unwearied, does the swallow skim over fields and meadows, and the surface of ponds and sheets of water. There, indeed, is a profusion of food, and most skillfully does it dip beneath, emerge with its insect prey, and then shake the spray from its burnished plumage; feeding, drinking and bathing on the wing.

The "swallow flying south" was entrusted with a very pretty message from her destined husband to Tennyson's wilful princess. Utopian swallows, no doubt, transmit all such communications faithfully, but in this prosaic world they usually come and go unweighed even with such light gear as lover's vows. One, however, lately knocked at the window of a peasant farmer, in a village in one of the northern departments of France, to deliver a note. On being admitted, in a very exhausted condition, it perched upon the chimney-piece, where it allowed itself to be examined and handled, when it was discovered that the little harbinger of summer had a red ribbon

around its neck, to which a paper was attached. This, on being unfolded, proved to be an appeal on behalf of the bird from a member of a household in Italy, whose home it had visited for six years. In obedience to the wishes of its distant protector, the swallow was caressed, warmed and fed, and a green ribbon substituted for the decoration it had received in Italy. Then, and not till then, the bird exhibited symptoms of impatience; it was set at liberty, flew out of the window, and, although it remained in the neighborhood of the farm, never again made any attempt to communicate with the inmates. The locality from which it came being, as it appeared from the note, in the neighborhood of Mount Vesuvius, the occurrence is worthy of the attention of ornithologists as a contribution to the data on which to decide the length and direction of the flight of migratory birds.

Swallow is the general name of the diurnal fesiostroal birds of the family *hirundinidae*, including the swifts, many of which are called swallows. The typical genus (*hirundo* Linn) having more than fifty species, embraces several well-known, elegant swallows, both in America and the old world, remarkable for their great powers of flight.

Most species prefer the neighborhood of man, building their nests in society in his dwellings and buildings; they form attachments to places, returning year after year to the same nests. Though declared by ancient writers to be one of the two untamable animals (the fly being the other), they are docile, and have been partially domesticated; they are useful to man in destroying insects—a single bird collecting about a thousand in the course of a day. The nests are generally made of clay or mud mixed with straw and grass, of various forms, and attached externally to some building. Many species breed in holes in sand banks, at the end of which is the nest of grasses and feathers; the eggs are five or six. Swallows are alluded to in the sacred and ancient writings, and are the subjects of many strange tales and stories. There is no appreciable difference between the European and American birds, furnishing one of the very few instances (perhaps the only one) among land birds of the same species permanently inhabiting both continents.

The best known species in the old world is the chimney or house swallow (*H. rustica*, Linn). As its name imports, it frequently builds its nest in chimneys, a few feet from the top; it also nests in old walls and shafts of mines, and among the rafters of barns and sheds. The analogue of this species in America is not the one commonly called chimney swallow with us (which is a swift), but the barn swallow (*H. rufa*, Vieill). It inhabits North America, from the Atlantic to the Pacific; appearing in the Southern States from the middle of February to March 1st, a few at a time reaching New England, in mild seasons, as before stated, by the middle of May; seldom appearing before the final melting of the snow and the commencing of fine weather. As it commits no depredations on man's property, and serves him in destroying noxious insects, and the teasing pests of horses and cattle, it is generally liked and protected. It is believed by some credulous people that if swallows are shot the cows give bloody milk, and that their presence in a barn prevents its being struck by lightning. "When the tenets of superstition lean to the side of humanity, one can readily respect them."


This species collects in large flocks in midsummer, on barns and sheds, telegraph wires, etc., chirping almost continually, and making short sallies in search of insects. Then we have the Cliff or Fulvous swallow (*H. lunifrons*, Say). The white-bellied swallow, or American house martin (*H. icoler* Vieill). The largest of the American swallows is called the Martin.

The swallows are regarded as the winged heralds of summer. Many lovers of Nature will find the expression of feelings, often entertained, in the following verses:—

"Welcome, welcome, feather'd stranger,
Now the sun bids Nature smile;
Safe arrived, and free from danger,
Welcome to our blooming isle!
Still twitter on my lowly roof,
And hail me at the dawn of day,
Each morn the recollected proof
Of time that ever fleets away!

"Fond of sunshine, fond of shade,
Fond of skies serene and clear;
E'en transient storms thy joy invade,
In fairest seasons of the year.
What makes thee seek a milder clime?
What makes thee shun the wintry gale?
How knowest thou thy departing time?
Hail! wondrous bird! hail, swallow, hail!

"Sure something more to thee is given
Than myriads of the feather'd race,
Some gift divine, some spark from Heaven,
That guides thy flight from place to place.
Still freely come, still freely go;
And blessings crown thy vigorous wing;
May thy rude flight meet no rude foe,
Delightful messenger of spring!"

 We credit most our sight; one eye doth please
our trust far more than ten ear-witnesses.—HERRICK.

Millions of Fish Distributed.

A very large amount of work has been done at the State Fish Hatchery at Caledonia, near Rochester. During the season of 1875-76, not yet closed, there have been distributed 1,460,000 salmon trout and eggs, 252,000 brook trout, 70,000 California salmon, 150,000 whitefish, besides large quantities of eggs of these fish. During the last six years there have been distributed from this single establishment 10,000,000 salmon trout eggs and fry, 10,000,000 of salmon, and 1,000,000 each of California and Kennebec salmon. In shad hatching 5,000,000 eggs were gathered and impregnated last year, a large part of which were put in the Hudson river.

French and English Manners.

Says John Stuart Mill: I did not know the way in which, among the ordinary English, the absence of interest in things of an unselfish kind, except occasionally in a special thing here and there, and the habit of not speaking to others, nor much even to themselves, about the things in which they do feel interest, causes both their feelings and their intellectual faculties to remain undeveloped, or to develop themselves only in some single and very limited direction, reducing them, considered as spiritual beings, to a kind of negative existence. All these things I did not perceive till long afterwards; but I even then felt, though without stating it clearly to myself, the contrast between the frank sociability and amiability of French personal intercourse and the English mode of existence, in which everybody acts as if everybody else (with few or no exceptions) was either an enemy or a bore. In France, it is true, the bad as well as the good points, both of individual and of national character, come more to the surface, and break out more fearlessly in ordinary intercourse, than in England; but the general habit of the people is to show, as well as to expect, friendly feeling in every one toward every other, wherever there is not some positive cause for the opposite. In England it is only of the best bred people in the upper, or upper middle ranks, that anything like this can be said.

Swift and His Servant.

Dean Swift, while on a journey, and stopping at a tavern, desired his servant John, who by the way, was as eccentric as his master, to bring him his boots. John brought up his boots in the same state they were in the evening previous. "Why didn't you polish my boots?" said the Dean. "There's no use in polishing them," said the man, "for they would soon be dirty again." "Very true," said the Dean, and he put on the boots. Immediately after he went down to the landlady, and told her on no account to give his servant any breakfast. The Dean breakfasted, and then ordered his horse out. As he was ready to start, John ran to him and said: "Mr. Dean, I haven't got my breakfast yet." "O" replied the witty divine, "there's no use in your breakfasting, for you would soon be hungry again." John, finding his theory thrown back on himself, submitted to the privation with the same stoicism as did his master with the boots. On they rode, the Dean in front, reading his prayer-book, and the man behind at a respectful distance, when they were met by a gentleman, who after eyeing the Dean very closely, accosted the servant with: "I say, my man, you and your master seem to be a sober pair: may I ask who you are, and where you are going?" "We are going to heaven," said John, "my master is praying and I am fasting." The gentleman looked again in wonderment at the master and man, and rode off, none the wiser for his questions.

A queer looking insect was taken from a street hydrant in Nashville, Tennessee. It was an inch in length, and of a bright yellow color. Along its back were two rows of a substance resembling delicate fringe, which it kept constantly in wave-like motion. The eyes were black and remarkably keen in expression. What appeared to be three tails were connected with a hardly perceptible membrane, and when spread out resembled a fan in shape. This seemed to furnish the motive power in swimming, though in making its way through the water it swam more like a snake than a fish. It was exhibited to several scientific gentlemen, but none of them had ever seen anything like it before.

Early Robins.

I look out from my window
Over the garden bare,
Robed in its crisp, white garment
Of feathery snow-flakes fair.

The raw March wind is blowing
In a freezing, fitful blast;
While hurrying helter-skelter,
The flakes are falling fast.

A peach tree crowned with color,
Its burdened branches bends,
And in half regretful sadness,
A waft of perfume sends,

Which steals upon my senses
Like thoughts of by-gone hours,
And makes me wish for summer,
For sunshine, grass and flowers.

Under the bending branches,
Crouched among the weeds,
Tucked in the gooseberry bushes,
And picking up the seeds—

A hundred robin-redbreasts
Seek shelter from the storm:
Their brown and crimson garments
Seem scarce to keep them warm.

Russett, wren and chick-a-dee
Hop fearlessly around,
As if on grassy carpets,
Instead of snowy ground.

With cheery chirp and twitter,
They marvel at the sight,
Of pretty robin-redbreasts,
In such a woeful plight.

O, sorry flock of wanderers!
Ye ventured north ere time;
Lured by tempting zephyrs
From milder southern clime.

O, darling little breast-birds!
To all the household dear,
The raging storm sweeps o'er you,
Without a waft of cheer.

Where can ye rest at night-fall,
While wild the wintry wind—
In snow-clad trees and bushes
What shelter can ye find?

We'll throw you crumbs of comfort,
Dear birdies! while you stay,
And pray the morrow's dawning
May bring a sunnier day.

Eminence, Ky., March, 1876.

E. H. McG.

Sir Walter Scott.

REMINISCENCES OF HIS EARLY DAYS.

In the year 1771, there was born in the City of Edinburgh the little child who grew to be known throughout the world as Sir Walter Scott, the great writer and poet. Both his parents were highly-educated persons, and perhaps this influenced the tastes and habits in which their son grew up. At about the age of eighteen months he lost the use of his right leg, after a severe attack of fever; but though he was ever after lame, he was wonderfully brave and active as he grew older. Those earliest days were spent in his grandfather's house at Sandy Knowe, and while he stayed at the old farm he would go with the cow bailie and roll about on the grass for hours among the herds and flocks, making friends with the sheep and lambs, who soon knew the little lame boy. One of those days he was forgotten among the crags, and a thunder storm came on; but when his aunt remembered where he was, and hastened herself in search of him, she found him lying happily on his back, watching the lightning and crying, "Bonny! bonny!" at every flash.

His grandmother used to tell him the old Border tales which she had heard in her own childhood, and so the names of Jamie Telfer and other heroes were familiar to him, and he could repeat long pieces by heart from the stories and ballads with which his Aunt Janet amused him.

When he was about four years old Walter was taken to Bath, with the hope that the mineral waters might cure his lameness, but very little change took place. In 1779 the lad returned to Edinburgh and was sent to the High School there, where he was placed in the second

class, which contained some very good scholars, among whom Scott became a general favorite, from his mirthfulness and fun; besides, in winter he could tell any number of tales as they sat round the fire in a circle listening to him. Of himself, he says that he "disgusted his kind master" by his negligence and frivolity as much as he pleased him by his intelligence and talent.

One tale which Scott has now and then told of his school days is this:—"There was a boy in my class," he says, "who stood always at the top, and with all my efforts I could not get above him. Days passed, but still he kept his place, do what I would; but at last I noticed that whenever a question was asked him he fumbled with his fingers at a particular button on his waistcoat. In an evil moment I removed it with a knife. When the boy was again questioned his fingers sought the button in vain; in his distress he looked down for it, but it was not to be seen, and as he stood confounded I took his place, nor did he ever guess who was the author of his wrong. Often in after life has the sight of him smote me as I passed by him, and I resolved to make him some reparation, but it always ended in good resolution."

When thirteen years old, young Scott first read Percy's *Reliques*, and this work had a great effect in making him a poet; still, before this time he had tried his hand at verse-making, some of which attempts were found in after days. The rupture of a blood vessel laid him on his bed for many weeks, and then his great amusement was reading; for he tells us he did nothing else from morning till night, unless some one was charitable enough to play chess with him. From a circulating library in Edinburgh he obtained many old romances and plays, and when tired of these he turned to histories, voyages and travels, and thus acquired a quantity of ill-arranged information, which proved useful in the literary work to which he devoted his life, and which has made his name famous.

In 1792 he was called to the bar as an advocate; but he had very little practice. His literary life had really begun, which lasted for six-and-thirty years. In 1805 he gave to the public the "Lay of the Last Minstrel," and became the poetical favorite of the day. "Marmion," the "Lady of the Lake," and other poems followed. In 1814 he published the historical novel of "Waverley," but for several years it was a secret that he was the author of the book, who was spoken of as "the Great Unknown." In the next few years he published with his name several similar romances, among them "Rob Roy" and "The Heart of Midlothian." He assisted in starting "The Quarterly Review."

To his pen he owed his land and castle at Abbotsford, and from 1820 to 1826 he lived there like one of his own feudal chiefs; but in 1826 there came a commercial crash, and the publishers of his books became bankrupt, and he was found to be liable for a vast debt. Scott set himself nobly to work to repay it. He overtasked his strength in the effort, and in 1832 breathed his last at Abbotsford, leaving behind him a name which will never be forgotten.

Traces of the Past.

On the seacoast of Northern Europe are found immense heaps of sea-shells, such as oysters, cockles, mussels, periwinkles, etc., varying from three to ten feet in height, and some of them one thousand feet in length, and two hundred in width. These are now known to be the mere refuse heaps of a very ancient race who lived in what geologists call the stone age, when no implements of metal were used. The stone age, however, is divided into two—the earlier, when implements were made only of rough stone, and the later, when they were polished. The implements found among the shells are the latter class. Besides these are also fragments of rude pottery, and cinders of charcoal, bones of wild animals, but none of the domestic except the dog. Human skulls also are found, bearing a strong resemblance to those of the Laplanders. They probably had no knowledge of agriculture, but lived wholly on the products of the chase and fishing—more or less of their fish, as the remains of herring and cod show, being obtained from the deep sea, probably by boats hollowed from a single tree. It was evidently the custom for the whole tribe to throw their refuse together in one heap.

THE annual honey product of the United States is valued at \$8,000,000.

THE SLIDE OF ALPNACH.

A Swiss Invention for Running Timber from the High Alps.

Switzerland is emphatically the country of the Alps. In beautiful and picturesque scenery it stands without a rival in the civilized world. Alps piled upon Alps meet the gaze at every turn as far as the eye can reach. The view from their lofty summits is grand and impressive. Ranges of ponderous peaks, appearing blue and cloud-like, bound the limits of vision. Often, on a pleasant, cloudless morning, long rows of white fleecy fog fill the lower valleys, marking their winding courses far and near. As the sun rises in its course the vapor is dissipated—the veil is lifted, and the beauties of Nature displayed. The white snow-capped summits shining in the clear noon-day sun form an ever-pleasing contrast with the thick forests of pine and cedar that clothe their bases with a covering of sombre green, while below winds the narrow well-cultivated valley, dotted over with neat villas and hamlets. Herds of cattle and sheep crop the rich verdure of the little plain, rest in the shade of some favorite old tree along the bank, or stand in the cool glassy stream as it moves slowly on. Merry streamlets and calm lakes glitter and sparkle in the brilliant rays of the sun, while the foaming cataract leaping from some Alpine precipice appears like a silver ribbon. Surrounding all are rugged crags and peaks, down which glittering icy glaciers extend, and along which the thunder of the rolling avalanche is often heard; but it detracts not from the beauty of the valley. Taken altogether, an Alpine valley forms a picture of enchanting loveliness not soon forgotten.

Mount Pilate rises in seven bold and rugged peaks, surrounding a small lake, where, according to the tradition of the country, Pontius Pilate drowned himself. In the early part of the present century the precipitous sides of these rough, uneven peaks were covered with a dense growth of valuable pine timber. The dark ever-green forest appeared almost impenetrable; and the supply, could it only be got at, would be well-nigh inexhaustible. But it stood in a spot deemed inaccessible; and for hundreds of years the giant trees had tossed their sighing branches derisively in their elevated position, as if defying alike the power of man and the storm.

At length a long European war broke out, and there was at once a great demand for timber. Many ports had been blockaded and the supply cut off. If the timber of Mount Pilate could reach the market it would bring the producer a fortune indeed. Enterprising men of scientific attainments visited the spot for the purpose of devising some means to reach the wealth that they knew lay in the pine forest; but they shook their heads and went away disappointed. In 1816, M. Rupp and three other noted Swiss engineers ascended the mountain, and ere long they had a plan matured. They were the men for the occasion. They believed human genius capable of surmounting almost every obstacle if work was only pushed ahead with energy and perseverance, and with an eye fixed on success. They came down fully satisfied that they should succeed; and in a short time a hundred and sixty men had been sent upon the mountain side to work. Large pine trees were cut down, stripped of their bark, and fastened firmly together in such a manner as to form an immense trough about six feet in width and from three to six feet deep. This was carried in an undeviating line down the side of the mountain, over rocks and crags, along the sides of huge ledges, over defiles and deep gorges, in mid-air, a hundred and twenty feet from the bottom, supported by long props and scaffoldings, through tunnels underground, and in many places it was even attached high up the rugged face of granite cliffs. In eighteen months the great structure was finished. It was eight and a half miles in length, required 25,000 large pine trees to construct it, and cost about \$21,250. Water from the mountain rills was let in at various points, and conducted along a groove in the centre to keep the bottom wet, and thus diminish the friction and prevent the possibility of its taking fire.

The timber was now cut down, and the most valuable portion worked to the upper part of the stupendous chute, or slide, as it was termed, and preparations made for running it down. Workmen were stationed at in-

tervals along the line, and when everything was ready the man at the bottom cried out lustily, "*lachez*" (let go). The word was taken up by the next man above, and passed on from man to man until it reached the top, when the man holding the prepared timber shouted back, "*il vient*" (it comes), and immediately let go the tree—perhaps three or four feet in diameter, and a hundred feet in length. The word was passed down in advance, and those below were thus informed of its coming.

Ere long a low murmur was heard, like the sighing of the wind among the branches of the pine forest above, growing louder and louder with each succeeding moment until it resembled the rush and roar of the hurricane, and then the forest was filled with the roar of thunder; the vast structure began to jar and tremble, and then the huge tree dashed into sight above, flashed past with almost the tremendous velocity of lightning, and with a splash and splurge, plunged into the depths of Lake Lucerne at the bottom. Professor Playfair tells us that he found it impossible to strike even the largest logs twice with a stick while they were passing. The velocity of a cannon ball has been estimated at eight miles per minute; and the speed of the descending trees as they dashed down this famous Alpine slide was often one-fourth as great, and sometimes even more. Their usual time in passing down the chute—eight and one-half miles—was about six minutes; though they have been known to run it in *two minutes and a half*—a velocity four or five times greater than that of the swiftest locomotive that ever runs.

At one time an arrangement was made near the lower end, where the speed was the swiftest, to throw the descending trunks from the slide, as an experiment to show the force acquired by such a fearful descent. A large trunk was let go from the upper end and came on with the speed of the whirlwind. It reached the obstacle placed in its way, and leaping from the slide it plunged into the solid earth to the depth of twenty-four feet. Another followed and buried itself eighteen feet in the ground. A third by accident struck against another, with a sound like the boom of a cannon, and cleft it completely asunder, from end to end, as though it had been struck by a bolt of lightning. The shock was fearful. A cloud of dust raised over the spot, and stones and splinters flew in every direction.

The timber was collected in the lake and formed into immense rafts, when it was floated down the Reuss and Aar into the River Rhine, and from thence onward to the sea, where a ready market was found. In this way millions of feet of valuable pine was run from the base of Mount Pilate; but at length the war ceased, and the blockaded ports were thrown open; and as this mode of obtaining timber was attended with considerable expense, large quantities could be procured elsewhere cheaper, and the celebrated Slide of Alpnach was suffered to fall to ruin. Hardly a vestige of the magnificent structure remains to mark the spot.

A Persian Wedding.

The young man who was to be married came himself to invite us the wedding on the day before the ceremony; he was as pale and trembling as though he had come to tell us he was to be hung. We all went; the gentlemen took off their shoes at the door; the ladies squatted on the floor on one side of the room to await the coming of the bride. Two missionary ladies went to bring her, and found her crying with all her might (she is expected to cry for a week); they at last came, dragging her in. She looked like a Dutch doll. A great big red mantle was thrown over her face, and where the top of her head was was a bunch of gilt papers, one of which each guest picked off after the ceremony as a memento. When we went up to kiss the bride we had to fumble around under the mantle to find her face, which was dripping with perspiration, and she looked as if she had not a friend in the world. We then handed her our wedding presents; some brought a paper of pins, others a cake of soap, etc. After the ceremony all sat upon the floor to partake of refreshments. I could not eat the native dishes, but enjoyed the chicken and watermelon.

☞ Friendship is the medicine for all misfortune; but ingratitude dries up the fountain of all goodness.

RICHÉLIEU.



THE PRISONED TORTOISE.

BY JENNETTE GIBSON.

Yon strange little tortoise, shut in a shell,
Are you not aweary, thus to ever dwell;
Creeping slowly onward thro' the grassy dell,
Or resting all alone
On a mossy stone?

Don't you long to burst from your prison home,
O'er the lovely earth carelessly to roam!
With a mighty strength, want to wail and moan,
In desperation sheer
For a new career?

Power do you crave, o'er the fields to chase
With the nimble hare, in a merry race;
To with suppl. limbs swift with airy grace,
Leave him far behind
Seeking you to find?

If you note the birdies ever on the wing;
While they sit aloft 'mid the trees and sing,
'Till their merry voices thro' the forest ring:
Do you covet wings
And a voice that sings?

May be you exist without bright dreams
Do you ne'er in fancy catch soft gleams
Of a better life than this one seems,
Encased in a box,
Subjected to knocks—

From boys like me, who with joyous laugh,
Bound o'er the fields and cross your path;
Then in wonder stay, to know what hath
An abiding place,
In a horny case?

Nay, be not fearful and draw in your head,
Making the pretense that you are dead;
I'll not harm you—have no dread
Of my supple hands
On your iron bands.

Can you not answer, thou creature small,
As you crawl toward the old stone wall,
To conceal yourself amid bushes tall,
By the river side,
Where you long to hide?

No doubt you're glad your way to pursue;
Awkwardly crawling thro' dust and dew,
With your burdened back and joys but a few—
You poor little thing,
You're not made to sing!

But you like to rest on the grass cool,
Bask in the sunshine—bathe in the pool—
Seek the quiet spots on God's foot-stool,
And clumsily creep
On a log to sleep.

Out of sight passed, now rest in peace,
From human presence find a release;
You were created to live and increase
For a purpose good—
This is understood.

From man, in God's image standing erect,
To the smallest insect the eye can detect—
The beauties with which the earth is decked,
All in their fitness,
To this bear witness.

To its sphere adapted, each living creature
Is planned and guided by the great teacher;
Who formed in wisdom each curious feature
Of the tortoise bound
In a shell all round.

Gratitude of a Lioness.

The report of the Royal Zoological Society of Ireland states that "during last year the gardens sustained a heavy loss in the death of the beautiful lioness familiarly called Old Girl. She was born in the gardens, of South African stock, on Sept. 8th, 1859, and died on Oct. 7th, 1875, after six weeks of prostration from chronic bronchitis. During her long career she presented the gardens with fifty-four cubs, of which she actually reared fifty, losing only four. This is a feat unprecedented in the annals of menageries and gardens. She was an animal of very high spirit, although very gentle, and was admitted by judges to be the handsomest lioness they had ever seen. Her offspring not only added to the attractions of the gardens, but the judicious sale of a portion of them brought £1,400 in cash to the society. The closing weeks of her useful life were marked by a touching incident worthy of being recorded. The carnivora when in health have no objection to the presence of rats in their cages; on the contrary, they rather welcome them as a relief to the monotony of existence, which constitutes the chief trial of a wild animal in confinement. In illness the case is different; for the ungrateful rats begin to nibble the toes of the lord of the forest before his death, and add considerably to his discomfort. To save the lioness from this annoyance, a fine little tan terrier was placed in her cage, who was at first received with a sulky growl; but when the first rat appeared, and the lioness saw the little dog toss him into the air, catching him with professional skill across the loins with a snap as he came down, she began to understand what the terrier was for. She coaxed him to her side, folded her paw around him, and each night the little creature slept at the breast of the lioness, enfolded with her paws, and watching that his natural enemies did not disturb the rest of his mistress. The rats had a bad time during those six weeks."

The Anglo-Saxon Cheer.

What a serviceable cry and word-of-all-work is provided for us by our familiar *hurrah*! Probably no other tongue, ancient or modern, ever possessed a cheer so variously useful. Certainly the Greek and Roman had no cry of wider application, and we may surmise that the "hosannah," whence, as philosophers say, *huzza* may have come, as well as the Gothic word of hurry and agitation whence our "hurrah" and the Swedish *hurra* are derived, were also far more limited in employment. We discharge our cheers in volleys of three or volleys of nine, or we load and fire them at will; we hurrah at an oration, a procession, an after dinner toast, an extra holiday at school, a show of fireworks, a yacht race, the announcement of election returns, the ninth inning of a base-ball match, or the storming of a redoubt. Compared with this the exultant cries of the modern Latin race are very contracted in application. They must be directed at some specific person or thing—*Vive el rey*, *Vive Garibaldi*, *Vive le President*, or else *Vive l' Empire*, or *l' Assemblée*—and they are not pure expressions of a general joyous excitement. Let us concede that our "hurrah" is rather a barbarous shout, well worthy of its barbarous origin. It certainly has not the refinement of *vive*, *viva*, *vivo*; and as it lacks their delicacy of sound, so does it also lack their definiteness of signification. Nevertheless, the piping sound of *vive* can hardly give the full-lunged satisfaction of the yell "hurrah," and hence natives of other countries who come to our own, take kindly to our popular shout, and inquire no more than we Americans do what the word really means.

House Raising in the Island of Rugen.

Prussia does not boast of many islands. Rugen, the largest and finest, is in the province of Pomerania. It is irregular and picturesque in shape; being made up of peninsulas, which relieve it from all monotony and makes the scenery most attractive. As the beach is good it is a favorite summer resort for bathing; and the young find endless enjoyment from the peninsulas of Jasmund to the romantic scenery of the steep, rocky ridge overlooking the level stretch on the west, or the rugged chalky cliffs on the north; or they toil up to the ruins of the ancient castle of the princes, on Mount Rugard; or they muster courage to strike into the deep beachwood, where within the massive circular wall the goddess Hertha was worshipped in the olden days of paganism. This fertile island has witnessed stirring scenes during the lapse of ages; and the tourist is taken to the King's Seat, whence that mad monarch witnessed a sea-fight between the Danes and Swedes. The two Scandinavian nations had many a sharp contest for this island, and it has been subject to Danish, Swedish and German rule; but in the repurcelling of Europe, after the fall of Napoleon, Rugen passed from all Scandinavian hands to those of Prussia.

Its people are simple folk, full of traditions and lore, keeping up the old patriarchal ways and the warm community sympathy that mark old and very new settlements. Political changes, wars and revolutions seem to have spent their force before reaching this quiet island, leaving the people in their primitive simplicity.

The house raising shows the whole neighborhood taking part; busy hands have reared the frame of good solid timbers, which will last when their grand-children's children shall talk of the day. Girls and children take part as well as men. The timbers are well and firmly pinned together; the mortar is mixed by bright girls; bricks are brought, and good-sized ones, to fill up the interstices of the wall; the thatch is bound securely together and laid firmly in place, while a sturdy fisherman, of the old Viking type, directs the whole till the house is crowned, and general merrymaking rewards the earnest work of the friends and neighbors.

Iodine.

BY JAS. P. DUFFY.

Iodine, as usually met with in commerce, is a substance in small metal-like scales of a dark color. On being heated it affords a vapor of a rich purple tint, hence its name. The vapor condenses and reforms scaly particles. Its discovery is of comparatively recent occurrence, and first arose from an accidental circumstance. It was noticed that the pans in which barilla was manufactured, became very much corroded in some parts, and, eventually, chemical research accounted for the fact by showing the presence of a substance previously unknown as a distinct body.

For some years the uses of iodine was entirely confined to medical purposes, and especially as an antidote or preventative for the troublesome disease called *goitre*. Its presence in cod-liver oil has doubtless been highly beneficial in scrofulous and phthisical complaints. Since the discovery of photography, it has become of great importance; and, as such, is now a considerable product of the operative chemists' manufactures. The chief of its combinations, employed in photography, are the iodides of potassium, ammonium and cadmium. Most of the compounds of iodine are readily decomposed by chlorine.

Iodine combines readily with some of the metals, either in its state of vapor, or when in combination with other bodies. It is but slightly soluble in water, but is readily dissolved by alcohol, which thus forms what is termed the tincture of iodine, much used in medicine. It unites with chlorine, bromine, nitrogen and hydrogen; forming with the latter an acid—the hydriodic. With nitrogen it produces an explosive compound, somewhat similar to chloride of nitrogen, which has been described in a previous article.

It unites also with sulphur and phosphorous, producing light and heat. At the moment of its combination with the latter substance an explosion is afforded, hence great care is required when these substances are brought into contact.

Visiting Ants.

M. Homberg relates that there is a species of ants at Surinam which the inhabitants call visiting ants. They march in troops, with the same regularity as a large and powerful army. As soon as they appear, all the coffers and chests of drawers in the house are set open for them, as they are sure to exterminate all the rats and mice, and other noxious animals, acting as if they had a peculiar commission from nature to destroy them. The only misfortune is, they pay their visits too seldom; they would be welcome every month, but they do not appear sometimes for three years together.

Ancient Gluttony.

The ancients were great feeders. Even the gods descended to instruct mere mortals in the sublime art of gastronomy. But although they fed on ambrosia and nectar, their pupils were content with humbler fare. Homer's heroes delighted in roast beef, so that Englishmen have classic authority for their national predilection for this celebrated article of food. But Homer's heroes delighted in quantity, nothing less than a fillet of beef appeasing the appetite of a guest after a morning's contention with the doomed Trojans.

Really the ancients must have had voracious appetites, for we read of one Theagenor devouring a whole bull, and of Milo of Cretona performing the same feat. Titomur had an ox served for supper. Astydatur of Miletus consumed a feast prepared for nine persons, and Cambis, King of Lydia, was such a glutton that one night he devoured his own wife! The Persian Cantibaris ate until his jaws were tired. But all ancient history abounds with instances of offensive gluttony, the majority, no doubt, exaggerated, but all showing that even in the remotest times dietary excesses were held in abhorrence. Rome was disgraced by her great eaters. The Emperor Claudius passed away his days in eating and sleeping. Vitellius dined several times a day. His repasts ruined many families, for each cost not less than £3,200. There are some Vitelliuses among us in this day, but they are studiously shunned by all dinner-giving people. The newspapers inform us occasionally of men (a-hem! query?) devouring incredible quantities of food; but we never read of one equal in digestive capacity to one Nicholas Wood, a native of Kent.

Tulles says he once ate a whole sheep at one meal. One day three dozen of pigeons were placed before him and he only left the bones. Luckily, as regards the price of provisions, we have no such Woods now; the tendency of the appetite is beginning to be strictly epicurean.

J. J. W.

Light Houses.

There are six orders of lights in the United States' service, the first being established to give warning of the approach to land, and the others being subsidiary, to mark headlands and points in bays, rivers and lakes. There are white and red lights, fixed, revolving, and flash lights, and the revolving lights have different intervals, from a minute and a half to ten seconds. There are also fixed white lights showing a red flash at intervals, and in some cases two and even three fixed white lights mark a headland. Thus, on Cape Cod, Chatham has two lights, and Nausett three in a row. These differences are made to enable mariners the more readily and surely to distinguish lights apart, and thus to be certain what point or headland they are approaching at night. For the same reason light-ships are numbered and have their numbers painted on their sides. Buoys, too, are set in regular order for the better guidance of seamen. Thus, on entering a bay or harbor, the ship leaves red buoys, with even numbers, on her starboard, and black buoys, with odd numbers, on her port side. Where a buoy marks an obstruction in mid-channel which may be passed on either side, it is painted with horizontal red and black stripes; but if the buoy is striped white and black perpendicularly, this denotes that you must pass close to it to avoid danger. Perches with balls and cages on buoys denote that they are placed at turning points in the channel. Thus it will be seen that, by various ingenious expedients, as little as possible is left to chance or guess-work; and the seaman who has his chart before him, and understands these simple regulations, can find his way into any of our ports.

The Starting of the Engine.

Next to the grand stand, at which the opening ceremonies of the tenth day of May were held, at the opening of the Centennial Exhibition, the greatest point of interest was the Machinery Building, and the rush of visitors anxious to see President Grant set the great Corliss engine in motion was simply irresistible. The scene shortly after the President arrived was indeed an impressive one, and calculated to excite the interest of an intelligent people. It was known that the giant machine had been erected at a cost of \$200,000, and that fourteen acres of machinery and thousands of miles of belting and shafting were to be driven by it, and it was known also that one successful trial of its capacity to do the work had already been made. But had nothing happened since then, and were the great boiler, the wheels and valves still in running order? were the thoughts of the crowd audibly expressed. Each individual seemed to take a deep personal interest in the success of the national undertaking, and the greatest anxiety prevailed. Amid an almost breathless silence, Mr. George H. Corliss, the builder of the engine, a thoughtful man, tall, thin, and gray-haired, and very pale, but calm and self-possessed, conducted President Grant and the Emperor of Brazil to the two levers by which the now breathless monster was to be made a thing of life. Then, by a slight exertion of these rulers of two nations, the giant arms began to move, slowly at first, and then with a velocity that was tremendous in its force and majesty. One great sigh came from the huge iron chest, the belts and shafts moved in all directions, thousands of machines became active, the great engine was a great success, and then such a shout went out from the hearts of the people as is seldom heard in a human life time. The American multitude rejoiced at its own success in the triumph of the great American inventor.

How to Beautify Your Rooms.

The first condition of success in furnishing either a large or a small room is that there must be no over-crowding. This is absolute. When outline is lost, beauty, as a matter of fact, is also lost. We must all know many drawing-rooms in which, perhaps, the worth and beauty of each individual thing is indisputable, on entering which the first thing that strikes one is a sense of incongruity. What might have been an art collection is degraded to the level of an old curiosity shop. Most women are born with a love of beauty. But generally, unless this love is cultivated and trained, it runs to waste, and fritters itself away on small things. Women go into a shop and hover over a counter for an hour, engrossed in the purchase of fifty minute things, each one of which is pretty enough in itself if taken up in the hand and inspected; but not one of which can be clearly defined at a distance of two yards, and not one of which repays the trouble of the minute inspection. These are packed away in shiny cabinets that are blazing with ormolu scroll-work, on spindle-legged what-nots that seem to be designed for no other earthly purpose than to be knocked down at brief intervals, and on mantle-pieces that confuse one's vision and muddle one's brain during the long periods when the need of being near the fire forces one to face them. It is a better and higher system of economy to buy two or three good bronzes or marbles, on which the eye can always rest with pleasure, than to spend ten times the sum on a heterogeneous mass of the parti-colored rubbish which many accumulate, "in order," they call it, "to take off the naked look of their room." Better the naked room ten thousand times, than the false decorations.

All the performances of human art at which we look with praise or wonder are instances of the resistless force of perseverance; it is by this that the quarry becomes a pyramid, and that distant countries are united with canals. If a man were to compare a single stroke of a pick-axe, or of one impression of the spade, with the general design and last result, he would be overwhelmed by the sense of their disproportion; yet these petty operations, incessantly continued, in time surmount the greatest difficulties, and mountains are leveled and oceans bounded by the slender force of human beings; and continents girdled by the forces of Electricity, under the dominion of man.

An Oyster's Heart.

Near the hinge of an oyster is a cavity which leads to its stomach. It may be called, with a little license, its mouth; not that it has teeth, or that in any way it masticates food, or that it indicates the place of the head, for the oyster belongs to a division of mollusks known as the *acephalates*, or headless ones. But it is functionally a mouth, and is like mouths in two important particulars. It is the entrance of the food to the alimentary canal, and it has certain lip-like organs with which to control the entering food. If, then, the oyster's mouth is thus situated near the hinge, that part of the creature should be known as its interior, or forward end. The opening end, that which the oystermen call the "nib," is therefore really the posterior extremity. Every one knows that in opening an oyster the knife has to be passed through a stout organ, wrongly called by many the eye; for the oyster is eyeless. Some call it the heart. This, also, is incorrect. It is the great adductor muscle, with which the animal draws together its valves. But the oyster has a true heart. It is situated near to and forward of the adductor muscle, that is, between it and the mouth. If a finger of a glove were cut off and inflated with air, being closed up at the end, and then a thread were tied round so as to constrict it in the middle, we should have something resembling in shape pretty nearly the oyster's heart. This small organ is divided by the constriction into two lesser organs, an auricle and a ventricle, a receiving and a distributing reservoir of the pale, opalescent blood—its true life current, which animates every part of this complex little being. If an oyster be opened with sufficient tact and care, the heart can be seen at work, beating much as our hearts beat—a true rhythmical pulsation. Indeed, with watch in hand, the beats can be counted, as when a physician makes a diagnosis of one's pulse. As death nears, so slow the throbs of the oyster's heart.

The Tower of Babel.

Babel, or Baalbel, was a lofty temple built at Babylon by Belus, both as an observatory and a temple of the sun. It remains still in existence, under the name of Birs Nimrod, and has been amply described by Rich and Porter. It was formed of eight square towers, one on the other, 650 feet high, and the same at each side of its base. Late in its height was 160 feet, and the reeds between every three or four layers of brick were perfectly fresh, while the brick were calcined by fire. Babylon continued for 2000 years after to be the most splendid city in the world, and so Alexander found it as late as 325 B. C. According to the Jewish annals it was built 2234 B. C., beautified and enlarged in 2250, by Semiramis, who led from it her armies of all nations. It decayed on the building of Bagdad by the Calipus, as better situated for intercourse, in 760 A. D.

The Gulf Stream.

From the earliest periods of our history this colossal river of the ocean has been a favorite subject of study. Its vast depth, its width varying from thirty to three hundred miles; its mysterious journey of seven thousand miles through the counter currents and hurricanes of the Atlantic; its return to the Mexican Gulf, where it set out and from which it derives its name, have rendered it a marvel even to the philosophers of our own day. Currents vaster and more powerful traverse the Antarctic Sea and the Pacific, yet the Gulf Stream remains the most interesting of all. All the rivers that flow into the Gulf and the Caribbean Sea mingle their turbid waters with this stream, and are borne with it far upon the ocean, there to be deprived of the elements of disease. But for its ceaseless flow the tropical heat would become insufferable, and perpetual ice and snow would rest on the shores of all Northern Europe. While it stores up the sun's heat and wafts it to northern climes, it induces counter streams from the Polar Seas, which carry their chilling waters to the tropical zone. Apart from the beneficial purpose it thus subserves in the economy of the creation, its great practical utility to the mariner is well known. The science of navigation embraces a thorough knowledge of the nature and location of this current. It is also important that shipmasters desiring to enter or leave the Stream should possess a most accurate knowledge of its limits.

Color of the Red Sea.

In a communication to the Bombay Geographical Society, a writer confirms the opinion hitherto expressed by scientific observers that the color of the Red Sea is due to large portions being covered with patches, from a few yards to some miles square, composed of microscopic vegetables, or animalcules, particularly abundant in spring, and which dye the water an intense blood red; when not affected, however, by these organic beings, the deep waters are intensely blue, and the shoal waters shades of green. Contrary to the usual belief, the water of this sea is not remarkably salt, the saline matter being only about forty-one grains in one thousand. The evaporation is equal to eight feet annually, while not more than one inch of rain or rain water is added in the same time, for although there are heavy rains on the shore, they are sucked up by the parched sand. The result of such enormous evaporation is, according to this author, to produce a constant descent of heavy salt water to the bottom of the sea, and when this heavy fluid arises to the level of the Mocha barrier, it falls over in an outward current, and is replaced by an upper inflowing current—in this manner the whole of the water being changed once a year.

Perceptions of the Blind.

The organ of vision is considered the most delicate organization of the human frame; yet many who were born blind have been enabled to see by surgical operations, and the following is an interesting fact concerning one of that class:

A youth had become thirteen years of age, when his eyes were touched by a surgeon. He thought scarlet the most beautiful color; black was painful. He fancied every object touched him, and he could not distinguish by sight what he perfectly well knew by feeling; for instance, the cat and dog. When his second eye was touched, he remarked that the objects were not so large in appearance to this as the one opened at first. Pictures he considered only partly colored surfaces, and a miniature absolutely astonished him, seeming to him like putting a bushel into a pint.

Stanly, the organist, and many blind musicians have been the best performers of their time; and a school-mistress of England could discover that the boys were playing in a distant corner of the room, instead of studying, although a person using his eyes could not detect the slightest sound.

Prof. Sanderson, who was blind, could, in a few minutes, tell how many persons were in a mixed company, and of each sex. A blind French lady could dance in figure dances, sew and thread her own needle. A blind man in Derbyshire, England, has actually been a surveyor and planner of roads, his ear guiding him as to distance as accurately as the eye to others; and the late Justice Fielding, who was blind, on walking into a room for the first time, after speaking a few words, said, "This room is twenty-two feet long, eighteen wide, and twelve high," all of which was revealed to him with accuracy through the medium of the ear.

Verily, "we are fearfully and wonderfully made."

Snakes and their Habits.

If the rattlesnake uses its rattles as a love note I have never observed it; but that he uses it as a slogan of war, and to gather the clans to the fray, I have seen and heard the pibroch sounding, sounding from afar. In 1860 I had an experience in which one answered the call for assistance. Up to 1869 I have met many of them, and have never known them to spring their rattles unless excited by anger or within hearing distance of one in trouble, when they would answer and come in haste. When gorged they will remain undisturbed, apparently unconscious of the enemy; but let a dog come on the ground, and peace is at an end—it is fight or run. I do not know of anything that will excite them so quickly as a dog, and they seem to smell a dog at a considerable distance. Their food is rats, mice, birds and eggs, young rabbits, squirrels and toads. A rattle for every year is no criterion to judge age by. I have known one instance of two rattles being matured in one year, and I believe if they could be carefully noticed there would be instances of still more. I have seen a snake with three rattles larger in length and girth than one with thirteen rattles, both killed on the same day. Have

seen one with seven rattles larger than one with twelve rattles, both killed on the same day. Twenty-eight rattles is the greatest number of rattles I have seen on one snake, and it was not as large as some I had seen with a less number of rattles. Of the mortal enmity existing between the black snake and the rattlesnake, two instances have come under my notice, in each of which the rattlesnake proved an arrant coward, making a great noise, while the black snake did all the fighting—if I may call it fighting; it was rather a strangling and a squeezing. My attention was aroused by the rattlesnake passing close to me, paying no attention to my presence, but apparently trying to get away from something in pursuit, his rattles springing to their loudest note. I was in the act of throwing the gun up to stop him, when the black snake passed like a flash; going five yards to the rattlesnake's one, and the way he seized that rattlesnake by the back of the neck and went around him was something wonderful. My experience with the king snake and the moccasin ran through a course of thirteen years, and in that time I have seen the king snake get outside of the moccasin many times. When the king first seizes his prey, he coils around it until they are almost like a ball, turning occasionally and biting the coils of the moccasin. After being some time in the coil, he will open out, and if the moccasin shows signs of life, it receives another embrace. When life is extinct, the king snake stretches out its victim and commences at the head. It takes some time to gorge, especially if the one going inside is about as large as the one crawling outside.

German Courtships.

Domesticity is the quality that German men of the middle class most value in their wives. The young girls are very carefully trained in this respect by their mothers, and at the age at which they marry they are nearly always equal to the domestic duties of their position. They know how to knit men's hose, and to deal out rations to the servants. In the little parties the young lady is expected to make the necessary display of her domestic accomplishments, aided, of course, by judicious hints from her mother. The beer garden is the place at which many matches are made, and an observant suitor can generally tell by the second evening in the garden whether he is a favorite with the mother of his fair enslaver. If, on his appearance the second evening at the rendezvous, she innocently offers him a place beside the daughter, or accidentally makes a place for him, as it were in the confusion of the moment, he knows at once that one formidable outpost is carried. Perhaps the most interesting scene is a mother who, at a public place like that, has three or four daughters to adjust among as many ardent or reluctant suitors. From the pair who are most advanced in their wooing and may be left pretty much to themselves, to the pair who least harmonize, and consequently need the most direct attention and encouragement—from the one of these extremes to the other, along the intermediate grades of connubial readiness, the care of this watchful mother ranges and operates. When a young couple become really engaged, the man pays the lady's reckoning as well as his own. Up to that time the maiden's *gunsebraten* has been reckoned at the close of every evening with the account of the family, and paid for by the fond parent; but now the burden has been lightened. The future son-in-law meets his sweetheart's expenses, but them alone. Even if there be nobody else with them but the mother, she always pays her own bill. Night after night one may see, at the same restaurants, a young man pay for himself and his sweetheart, while the worthy matron just as regularly is left to the resources of her own purse. The German lover considers that the expense of the young lady's entertainment is in itself enough, and he ought not to contribute anything toward the amusement of the mother; is it not enough that he will soon take her daughter off her hands altogether? Surely she must be satisfied with that.

LONDON BOOTBLACKS.—The bootblacks of London are four hundred in number. They are well organized, and so successful that they seldom remain very long in the brigade. Promotion is certain, and often very rapid. The total earnings of these bootblacks exceed \$60,000 a year.

A House on the Water.

The journey from Rotterdam to Amsterdam by canal is one of great interest to the American traveller. All along the canal are windmills used for pumping and for grinding grain. A family residence is in each mill, and children and babies abound. The girls of these lower classes wear dark woolen stuff dresses with long skirts, short waists, straight, close sleeves, and, up to fourteen years of age, skull-caps knit of white cotton. The babies wear the same dresses, sleeves and caps; so, as the genuine Dutch girl looks like a Dutch old woman, a Dutch baby looks like them both, but is much the funniest of the three. Nobody can look at one of the little creatures without wanting to laugh; such fat, round, comfortable, stolid, old-fashioned babies they are. As is well-known, dairy farming is one of the specialties of Holland, and nothing can be prettier than the large, flat fields on either side of the canal, covered with herds of cows, often several hundred in a herd. Through the fields run lines of tubs set regularly and filled with grain from the distilleries, which are numerous. Little houses stand very close to the edge of the canal, nearly all having gardens more or less pretentious, and many having around the door rows of wooden shoes, carefully washed and stood on end to dry by the sun. These shoes are seldom worn in the house, being replaced by cloth slippers or bare feet. In many cases, the boat of a Hollander is his home. When he marries he takes his wife there and they get on very comfortably till the advent of three or four children drives them into larger quarters, when they sell the boat to a couple just beginning housekeeping, and buy for themselves a larger one. It is surprising in passing another boat to see a whole family of little white heads pop suddenly out of holes in the deck, and to hear from below the noise of ducks, hens and chickens. The woman washes and scrubs and cleans, as Dutch women love to do, while on the bank her husband, with a band around his shoulders, a rope fastened to the boat, and his hands in his pockets, walks off, leaving the boat to follow. After a time the man comes to take care of the children, the woman goes to the bank, puts the band around her shoulders, folds her hands behind her back, and leaning far forward at every step, goes wearily away, dragging behind her the boat and the family. Boys, horses and dogs do the same work. The canal is all alive with boats, and in spite of the long ropes that connect them with the motive power on the bank, they meet and pass each other as readily as carriages, the rope of one being thrown very gracefully over the next. Altogether, a trip by canal is a very pleasant affair, and, to the stranger, filled with novel sights and sounds.

A Legendary Crow.

A correspondent relates that among the noteworthy things of the woods and parks of Versailles, France, which are remarked by visitors, is a fine old crow, who is more than usually interesting from the fact that he was crow-in-ordinary to Queen Marie Antoinette. That is to say, that he was one of her great favorites, and followed her about like a dog. This worthy old relic of the old *regime* usually frequented the trees and lawns of the Petit Trianon, and can be easily observed, as he allows himself to be approached, and picks up with pleasure the crumbs that are thrown him. His story is a curious one, and is told as follows by an old frequenter of the woods of Trianon: One fine morning in the month of October, 1785, Marie Antoinette was at the window of her boudoir opening on the fine lawn that stretches on the east of the Petit Trianon. The Queen had a biscuit in her hand which she steeped in a cup of milk, when the crow came upon the window ledge, beating his wings as though applying for food. The Queen, though rather alarmed by the visit of this bird of sinister omen, willingly gave him the remainder of her biscuit, and then, pensive, shut the window of her boudoir. At breakfast, Marie Antoinette related to the King the incident of the morning, and made her royal husband share the painful impression which the visit of the crow had produced upon her. The following morning the same scene between the Queen and the crow took place. The bird became so attached to her majesty, that when, in her white morning-dress, with a simple straw hat on her head, she went to the Hameau to visit her sheep or to fish in the lake, she was followed by the faithful bird,

who flew from tree to tree, and only left her when she re-entered the palace. From 1789 the bird was seen no more, but when in 1800, the Empress Marie Louise came to occupy the pavilion, she was fond of breakfasting on the island, under the shelter of the little temple, and she one day remarked a crow that kept constantly hovering over the little building, and cawed loudly as if wishing for a share of the repast; it was the crow of Marie Antoinette.

The incident was told to Napoleon, who, being rather superstitious, expressed the wish that Marie Louise should leave Trianon, which she hastened to do. But in 1814 the same Princess returned to Trianon after the dethronement of Napoleon, and on the 19th of April had an interview with the Emperor of Austria in this residence. The Empress was walking with her father in the winding alleys of the park, and after a few turns both sat down on a stone bench near the little bridge leading to the island. The Princess was thinking of the happy days she passed there a few years before, and took pleasure in relating them to her father, when suddenly a formidable "caw! caw!" was heard close to their ears. They looked and saw a bird flying from the thicket behind them. Marie Louise uttered a cry of terror, for she had recognized the crow of 1810. The legendary bird has not forsaken the trees and the lawns of Trianon. The gardener and servants of the palace are most attentive to the wants of the old pensioner, provide it with food in abundance, and relate its wonderful story to visitors.

Training Wild Animals.

Beyond a rough training elephants receive in the countries where they are caught, which teaches them to mind the words of the teacher, and to submit to its necessary bonds, it has to undergo a special education to go through its many tricks in the broad arena of the circus. Being more intelligent than a dog, as tractable as a horse, and as full of pride and vanity as a woman, and quite as willing to learn as his master is to have him, his teaching is a matter of short duration. He learns by imitation, and will adopt a new trick from seeing another animal perform it, far more readily than a dog will. A little coaxing, feeding with much loved delicacies, (he is passionately fond of sweets of all kinds, and fruits) appealing to his vanity by gay trappings and dresses, and Mr. Elephant soon learns to trot, walk, lie down, get up, walk lame, sham dead, climb steps, stand on tubs, walk the tight rope, and in fact to undertake anything which the keeper can make him understand.

It being very natural for monkeys to climb, it is very easy to teach them to run up balconies, to collect small change from people; a sharp jerk from the cord attached to their waists soon brings them back to earth if they seem disposed to wander outside of the bounds.

They are taught to hold little sticks in their hands, in imitation of guns, by placing the stick in their hands, and rapping them sharply if they let them fall before the word is given. A great advantage is also taken of the monkey's faculty of imitation. The trainer will handle the stick or fire the pistol, or pick up pennies from the ground and put them into a red cap, and in a short time, if left to himself, Mr. Monkey is sure to imitate all the operations, thus unconsciously learning all the lessons which are to earn him his living in after life.

The little street performer, with his military suit, is corrected much more severely for losing or over-looking a penny in the collection of the day, than forgetting or bungling any of the tricks.

This accounts for the restless eagerness with which a street-monkey will scratch over every inch of dust and gravel, and the great sigh of relief and satisfaction he will give when he at last picks up the last of the scanty donations. Losing a penny means to him, also, losing supper as well, to say nothing of a sound whipping thrown in gratuitously.

J. J. W.

A gourd wound itself round a lofty palm, and in a few weeks climbed up to its very top. "How old may'st thou be?" asked the new comer. "About a hundred years," was the answer. "A hundred years, and no taller! Only look, I have grown as tall as you in fewer days than you count years." "I know that well," replied the palm, "every summer of my life a gourd has climbed up me, as proud as thou art; and as short lived as thou wilt be."

Plant Travellers.

One of the curiosities of plant-life is the rapidity with which it travels, in one way and another. Some bulbs throw out a new tuber on the opposite side from a decaying one, every year, and thus if they have a fair chance, would shift their place in the flower-bed considerably in a term of years. The strawberry puts on its "seven-league boots" and travels out of the rich man's garden over into the borders of the poor man's plot, or into the very highway side. I wonder how long it would take a plant with a fair field, well prepared, to travel a mile?

The raspberry is no stay-at-home. It winds its way to new fields, bending down a vigorous brier and sending out a little rootlet to catch in the soil, and so it travels on and on, coming into my garden under the boards of my neighbor's fence, and giving me a fine row, without robbing him.

The little fruits and lovely flowers may be great travellers; but they cannot keep pace with the mischief-makers in the vegetable world. Set out a Canada thistle in your garden and give it some moderate cultivation, and see how long it will be before your own and your neighbor's field will be overrun with the nuisance. No good plant will ever spread itself with such rapidity. It is very much like soil in the moral world. The second crop from one thistle seed, provided all germinated, would produce five hundred and seventy-six millions of thistle plants. What a pity they could not be utilized. A single poppy-head has been found to contain eight thousand seed.

The dandelion rises on its little feathery wing and floats away on the lightest breeze, till it finds a lodging-place in some favoring spot, where it makes a new home for itself and rears its numerous family. No wonder our meadows and vacant lots are covered with its golden blossoms.

Vacant Minds.

Most of us attribute our ill-health, or unhappiness, to a low condition of the body and want of physical exercise and pleasure, ignoring the fact that the mind has a most important influence upon the bodily system, and is often the cause of much suffering which might easily be avoided if we only looked to the source of the evil and considered the means necessary for its prevention. Few people attach sufficient importance to the care of the mental faculties, which are frequently either injured by an undue degree of exertion or weakened by neglect and disuse. The vast amount of "social pressure" which bears upon the daily life of business men furnishes only too many instances of the abuse of the mind by over-exertion. The rising man who is making a mark in his profession, or amassing wealth in mercantile pursuits, finds ere long that his strength is only human, and just as he may be about to reach the summit of his ambition he breaks down, and for the want of a little timely care his brightest hopes are wrecked and he is condemned to drag out a weary and shattered existence. The instances of mental neglect are not less sad, for many a man, whose abilities would have fitted him for the highest spheres of usefulness, allows the demon sloth to exert its fatal influence and incapacitate him for any active walk in life. Restless and dissatisfied, he seeks relief and excitement in the reckless indulgence of his bodily appetites, and wantonly destroys the brilliant talents which might have been turned to so good an account. The opposite sex also affords numerous instances of misused and neglected minds. The sphere of woman's life being necessarily more limited than that of a man, she has not so wide a choice of occupation or amusement. This often causes women who are naturally capable of considerable mental exertion to use their powers in an inordinate and unnatural degree. They choose some peculiar occupation, into which they throw all their energy with such force that they become not only hard and masculine in manner, but eccentric. Often they fall into the opposite extreme. Not being possessed of sufficient force of character to take up any really intellectual pursuit, and being easily influenced by any unusual excitement, they rest their hopes of happiness on such slight foundations that when these fail them they have no power to rally. The vacant mind broods over trifles for sheer want of occupation; inaction produces a feeling of fatigue, which induces a desire for solitude; solitude soon gives rise to melancholy, and a general weariness of existence makes the sufferer only too glad to embrace

any chance of relief. Hence arise ill-assorted marriages, melancholia, religious mania and conventual life.

If persons of both sexes would pay more attention to the care of the mind our lunatic asylums would be less full than they now are, and the health of the body would be much better preserved, for, as Schiller truly says, mental pleasure is invariably attended by animal pleasure, mental pain by animal pain. It is too much the custom for people to live in one narrow groove of thought and action. They consequently have no interest or sympathy for matters outside their little world, and having only one support to lean on they become utterly demoralized when it fails them. A change of occupation is as desirable and beneficial for the mind as walking exercise for the body. It should be the practice of every one to cultivate at least one form of mental occupation other than that which forms the chief purpose of life; for a wide range of knowledge and ideas is of inestimable value, and may prove to be not only a means of recreation and pleasure in prosperous times, but a source of profit and comfort when accident or misfortune renders it impossible for the ordinary pursuit to be followed. He who has two oars in his boat has a great advantage over the man who has but one. An enlargement of the field of thought not only yields benefit to ourselves by expanding the mind and making it more fit to bear the harassing cares and troubles of the world, but promotes liberal views, which rise us above the petty jealousies and prejudices, soften the heart, and tend to make us more kind and considerate to others. Though no amount of study and application can make a dull man clever, yet he may by the practice of self-cultivation become well-informed and studious. Every attempt to gain knowledge is productive of some good result, for, if it does nothing else, it leads to a spirit of inquiry, which is of itself beneficial.

The mental faculties should never be allowed to sink into lethargy, for nothing is more productive of irreparable mischief than a listless inaction.

Cheer Him.

At a fire in a large city, while the upper stories of a lofty dwelling were wrapped in smoke, and the lower stories all aglow with flame, a piercing shriek told the startled firemen that there was some one still in the building in peril. A ladder was quickly reared, until it touched the heated walls, and diving through the flames and smoke, a brave young fireman rushed up the rounds on his errand of mercy. Stifled by the smoke, he stopped, and seemed about to descend. The crowd was in agony, as a life seemed lost, for every moment of hesitation seemed an age. While this shivering fear seized every beholder, a voice from the crowd cried out, "Cheer him! Cheer him!" and a wild "Hurrah" burst from the excited spectators. As the cheer reached the fireman, he started upward through the curling smoke, and in a few moments was seen coming down the ladder with a child in his arms. That cheer did the work. How much can we do to help the brave ones who are struggling with temptation, or almost fainting in their efforts to do good to others. Don't find fault with your brother in his trial, but cheer him. Give him a word that shall urge him on the way; and if you cannot help in any other way, give him a cheer.

Divorce Customs.

In Australia, among the original natives, divorces are never sanctioned. The Thibetans can obtain divorces with the consent of both interested parties. In Morocco, if the wife has no son, she can gain the consent of her tribe for a divorce, and marry again. In Abyssinia no form of marriage is necessary, hence it follows likewise with a divorce. The Siberian men have divorcing all in their own hands, for, if dissatisfied with a wife, they tear her head-dress off, and she has to skeddaddle. In Siam the first wife may be divorced, but not sold, as may be the other wives. In the Arctic regions the husband desiring a divorce leaves his home in anger, remains a few days, and, returning, finds his wife has "taken the hint" and cleared out. The Tartars have it all their own way, both husband and wife, or either party can decamp from the other, and the same rule applies to the Hindoos. The Indians of this country burn the oaks of marriage as a sign of divorce, but a chief never divorces a wife who has borne him a son.

Subaqueous Life.

The effort to clothe with intelligence subaqueous life must have been greatly strengthened among primitive nations by the musical sounds peculiar to some species. Those mysterious breathings were associated with a human will, and gave forebodings from their very sweetness. Everywhere they are associated with a passionate or pathetic mystery, and the widely-spread area over which their island home is portrayed as existing strengthens the conclusion that the strange music of the sea belongs not in Ceylon or Florida or the Mediterranean alone. It affords us another instance, by that common enjoyment of sweet sounds, of the chain of sympathy between all intelligent creatures, and better prepares us for familiar acquaintance with the beings which people the sea. We have prejudices and preconceived ideas to get rid of, whose strength has crystallised into aphorisms. "Cold as a fish" and "fish-eyed" are ordinary expressions. Then the touch of a fish, cold, slippery, serpent-like, causes an involuntary shrinking.

But the submarine diver has a new revelation of piscine character and beauty, and perhaps can better understand the enticings of a siren or fantastic Lurlei than the classical scholar. In the flush of aural light tinging their pearly glimmering armor are the radiant, graceful, frolicsome inhabitants of the sea. The glutinous or oily exudation that covers them is a brilliant varnish. Their lustrous colors, variety of crystalline tints and beautiful markings and spots, attract the eye of the artist, even in the fish-market; but when glowing with full life, lively, nimble, playful, surely the most graceful living creatures of earth, air or sea, the soul must be blind indeed that can look upon them unmoved.

The dull optic seen glazing in the death-throes upon the market-stall, with coarse vulgar surroundings, becomes, in its native element, full of intelligence and light. In even the smaller fry the round orb glitters like a diamond star. One cannot see the fish without seeing its eye. It is positive, persistent, prevalent, the whole animate existence expressed in it. As far as the fish can be seen its eye is visible. The glimmer of scales, the grace of perfect motion, the rare golden pavilion with its jeweled floor and heavy violet curtains, complete a scene whose harmony of color, radiance and animal life is perfect. The minnow and sun-perch are the pages of the tourney on the cloth of gold. There is a fearless familiarity in these playful little things, a social, frank intimacy with the novel visitor, that astonishes while it pleases. They crowd about him, curiously touch him, and regard all his movements with a frank, lively interest. Nor are the larger fish shy. The sheeps-head, red and black proper, sea-trout and other familiar fish of the sportsman, receive him with frank *bouhonné* or fearless curiosity. In their large round beautiful eyes the diver reads evidence of intelligence and curious wonder that sometimes startles him with its entirely human expression. There is a look of interest mixed with curiosity, leading to the irresistible conclusion of a kindred nature. No faithful hound or pet doe could express a franker interest in its eyes. Curiosity, which I take to be expressly destructive of the now-exploded theory of instinct, is expressed not only by the eye, but by the movements. As in man there is an eager passion to handle that which is novel, so these curious denizens of the sea are persistent in their efforts to touch the diver. An instance of this occurred in Mobile bay, attended with disagreeable results to one of the parties, and that not the fish. The Eve of this investigation was a large catfish. These fish are the true rovers of the water. They have a large round black eye, full of intelligence and fire; their war-like spines and gaff-top-sails give them the true buccaneer build. One of these, while the diver was engaged, incited by its fearless curiosity, slipped up and touched him with its cold nose. The man involuntarily threw back his hand, and the soft palm striking the sharp gaff, it was driven into the flesh. There was an instant's struggle before the fish wrenched itself loose from the bleeding member, and then it only swung off a little, staring with its bold black eyes at the intruder, as if it wished to stay for further question. It is hard to translate the expression of that look of curious wonder and surprise without appearing to exaggerate, but the impression produced was that if the fish did not speak to him, it was from no lack of intelligent emotions to be expressed in language.

A prolonged stay in one place gave a diver an opportunity to test this intelligence further, and to observe the trustful familiarity of this variety of marine life. He was continually surrounded as he worked by a school of gropers, averaging a foot in length. An accident having identified one of them, he observed it was a lady visitor. After the first curiosity the gropers apparently settled into the belief that the novel monster was harmless and clumsy, but useful in assisting them to their food. The species feed on crustacea and marine worms, which shelter under rocks, mosses, and sunken objects at the sea-bottom. In raising something one of the worms, a dozen of these fish would thrust their heads into the hollow for their food before the diver's hand was removed. They would follow him about eyeing his motions, dashing in advance or around in sport, and evidently with a liking for their new-found friend. Pleased with such an unexpected familiarity, the man would bring them food and feed them from his hand as one feeds a flock of chickens. The resemblance, in their familiarity and some of their ways, to poultry was in fact, very striking. As a little chick will sometimes seize a large crumb and scurry off, followed by the flock so a fish would sometimes snatch a morsel and fly, followed by the school. If he dropped it or stopped to enjoy his *bonne bouche*, his mates would be upon him. Sometimes two would get the same morsel, and there would be a trial of strength, accompanied with much dash and glimmer of shining scales. But no matter how called off, their interest and curiosity remained with the diver. They would return, pushing their noses about him, curiously in appearance if not intent, and dive into the treasures of worm and shell-fish his labor exposed. He became convinced that they were sportive, intriguing in dash and play for the fun of it, rather than for any grosser object to be attained.

This curious intimacy was continued for weeks; the fish, unless driven away by some rover of prey of their kind, were in regular attendance during his hours of work. Perhaps the solitude and silence of that curious submarine world strengthened the impression of recognition and intimacy, but by every criterion we usually accept in terrestrial creation these little creatures had an interest and a friendly feeling for one who furnished them food, and who was always careful to avoid injuring them or giving them any unnecessary alarm. He could not, of course, take up a fish in his hand, any more than a chicken will submit to handling; but as to the comparative tameness of the two, the fish is more approachable than the chicken. That they knew and expected the diver at the usual hour was a conclusion impossible to deny, as also that they grew time familiarly with him, and were actuated by an intelligent recognition of his service to them. It would be hard to convince this gentleman that a school of fish cannot be as readily and completely tamed as a flock of chickens.

Why not? The fear of man is an element, leading to the invertebrate creation. The greatest vice penetrates into the uninhabited wilds of our western frontier; finds bird and beast fearless and familiar. Man's cruelty is a lesson of experience. The timid and fearful of the lower creation belong to creatures of prey. The shark, for example, is as cowardly as the wolf.

Cæsar's Nose.

The Roman nose is the very incarnation of the idea of combativeness, and suggests the notion that is borrowed from a bird of prey. In describing Julius Cæsar, Byron called him

"The pitch-forked Roman with
The eagle's beak to mark those who would eat
Behind a conqueror or to cut him off;
The lion he met not; Rome's sword-borne became
His, and all thine own became his prey again."

The "eagle's beak," as the obscurest scoundrel must be well aware, may be regarded as the common characteristic of men of a daring, dashing, audacious, energetic and enterprising nature; and taken by itself it need not be looked upon as typical of anything very admirable or desirable, since its owner is often as thoughtless and unscrupulous as he is bold and dashing. It was said of Napoleon, that if he wanted, in emergencies, any bold thing done of a sudden, and had no tried men at hand to whom he could trust the exploit, he was accustomed to select a man with a good military nose, and the person thus selected was generally successful.

A Hunting Bird that Lures Game to its Master;
 OR,
INSTANCES OF SAGACITY IN PARROTS.

A correspondent sends us the following account of a common poll-parrot which has not only been trained to

last trip to that city, a fine young parrot, to which he soon became more attached than any thing on earth. Others did not share his high regard for this pet, and and not a few quarrels did he have with those who saw fit to abuse what they called a "squawking nuisance." Loving his pet more than all the world beside, and above all desiring to live in peace, Nat Lask took up his residence in the out-of-the-way



FEEDING THE PET PARROT.

hunt, but which has learned to take a great delight in the chase. The owner and trainer of this hunting parrot is a boatman who formerly plied between Little Rock and New Orleans, but who some years since gave up the business of boating and has since led the life of a hunter, living in a snug cabin at the junction of Big Mammelle creek with the Arkansas River.

This hunter hermit, whose name is Nathan Lask, brought with him from New Orleans, on making his

place mentioned above, his parrot being his constant companion.

Here he may be said to have lived the life of a hermit, for few and short were the visits he received from his kind at his lone cabin. His bird was all and all to him. All the love that he would have lavished upon a wife and weans it received.—Seated on his shoulder, the parrot attended him in all his walks. To train the bird and talk to it was almost his sole oc-

cupation. With the careful training of so loving a master, added to its great natural talent for imitating all manner of cries of birds or animals, this bird became a marvel of cunning, and a great wonder in its way. Taken into the hills bordering Big Mammelle creek, and the signal being given at intervals, it utters the cry of the turkey so perfectly as to deceive the oldest and most astute gobbler that ever strutted. On being answered by a gobbler, the parrot proceeds to lure him to death in the most fiendishly coquetish manner imaginable. Seated on his master's shoulder, charily and coyly the parrot replies. Once he has fully attracted the attention of the vain and anxious gobbler, often allowing him to call in a fretful tone twice or thrice before deigning to answer, he then, in a few low and tender notes, lures the proud bird of the forest within range of the hunter's deadly rifle. Seeing the turkey struggling in the agonies of death fills the parrot with delight, to which he gives utterance in a succession of blood-chilling "ha, ha's," in all manner of diabolical tones and keys.

Should the hunter miss his aim, however, the parrot ruffles his feathers, croaks and scolds, pulls his master's hair, and long refuses to be pacified.

Duck hunting in Forche and Meto Bayous is, however, the parrot's chief delight. Seated in the bow of his master's boat, snugly ensconced in a patch of tall bullrushes, the parrot bursts forth into such a "quack, quacking!" and general duck gabble that there seems to be in the vicinity a whole flock of these birds, all enjoying themselves immensely. Thus are many passing flocks of ducks lured within range of the gun of the hunter. Geese are in the same way called up by this wonderful parrot; also many other wild fowl and even deer, as the bird imitates the plaintive bleating of a fawn or doe to a nicety.

No money would buy the bird, and Nat Lask, seen strolling through the woods, gun in hand, and with his almost inseparable companion seated on his left shoulder, seems a second Robinson Crusoe. Although so perfect in his imitations of birds and animals, the parrot is not a great talker; indeed his vocabulary is limited to a few words and one or two short phrases. He will sometimes sing out, "Nat, you lubber!" and when Dan Lanagan (a brother boatman of Nat's, living at the head of Bayou Forche and almost his only visitor), in his dug-out, is seen paddling in towards the mouth of Big Mammelle creek, the parrot—whose name we forgot to say is "Bobby"—will shout, "Lanagan, ahoy! Lanagan, a-a-hoy!" The moment Bobby sees his master take down his gun he is in a great flutter. He cocks his head on one side, his great red eyes sparkling with delight, and in a low, inquiring tone says: "Turkey? turkey?" "No, Bobby," Nat will perhaps say, "not turkey to-day, Bobby cocks his head the other way and softly says, "Quack, quack, quack?" "Yes, Bobby," says Nat, "quack! quack!" Bobby then bursts into a loud "ha! ha! ha!" and cries, "Nat, you lubber—quack! quack! quack!" Then he ha ha's till the whole cabin rings again. This parrot has green plumage, excepting the head, which is yellow.

The colors of the plumage of the parrots are exceedingly varied, being also almost always pure and brilliant. Green is in general the predominating color, then comes red, blue, and finally yellow. This last color appears among the parrots to be the general substitute for the white observed in other birds; and it is remarkable that in many of the species there are varieties uniformly yellow. Very often when the feathers are plucked, red and yellow ones will shoot forth, whatever may have been the color of the former. Their food consists principally of the pulps of fruit, such as those of the banana, the coffee-tree, the palm, and the lemon. Some of this family are also said to live on roots and herbs.

Several years ago a parrot was entrusted to my care for a few months. It proved a very amusing addition to our family. Its breakfast usually consisted of a cup of coffee and a cracker. Resting on its perch with one foot, it reached down, soaking the cracker in the coffee with the other; then the soaked part was eaten and the cracker dipped in the coffee

again, and so on until it was all eaten. If the coffee gave out we heard a loud call for "coffee! coffee!" and Miss Poll waited impatiently cracker in hand for a second cup, when she resumed the process of soaking. This parrot regularly came up two flights of stairs in the morning, crawled upon the bed and perched on the foot, exclaiming, "Come to breakfast," until we exhibited signs of awaking. She repeated many phrases plainly.—"Pretty poll," "good bye," "up in a balloon, boys," "never mind the noise," etc., were familiar to our ears.

Parrots of singular powers are occasionally met with. A friend of the writer was in Edinburgh, Scotland, at the time of the great Peel demonstration, and in a morning call was shown into the drawing-room, where a parrot was in his cage. Fond of animals, he went at once to the bird, who, looking very knowing, instantly inquired, "What do you think of Sir Robert Peel now?" Another party, advanced in life, with hair of a snowy whiteness, had the still more strange question put to him by a parrot in a room into which he was shown in London, "Who kissed the cook?" But another bird, an ash-colored or gray parrot, the property of an acquaintance, is exceedingly sagacious. Unlike the birds which questioned a stranger at once, she has a strong aversion to visitors, refusing usually to speak in their presence, and always expressing, in her own way, her hatred or contempt. She is now twelve years old, and for some days after her arrival at the house of my friend did not utter a single word. Her first words were, "pretty cockatoo," but she soon uttered others, until she became very loquacious, and is still picking up all she hears.

As soon as the mistress comes down stairs in the morning the bird says, "Mother, how do you do? good morning." As breakfast is being prepared she watches attentively every movement. Should that frequent domestic incident occur, she makes the house ring with, "The kettle boils! the kettle boils!" bustling about the cage with restless activity. Observing the cutting of a round of bread, she quietly says, "Polly likes a bit;" if asked, "what does Polly like?" the answer is, "Toast—just one little bit;" on receiving which she adds, "Polly likes two bits." As soon as the milk is taken in she calls, "Puss! puss!" it being the practice to give the cat some; but if the basin is about to be set down without her own portion being given, she calls, "Come! come! come!" until she is supplied and has drank off the milk heartily. If the door bell is rung without being attended to, she raps loudly on her perch and calls, "Mother! mother! Mrs. P—! Mrs. P—!" the name of her mistress, nor does she stop until the bell is answered.

This bird can vary her voice from that of an aged man to the cry of a child. When she supposes herself to be in danger, as one day when her cage tipped over, she called, "Mother! mother!" just like a child, until she was set right. For a little dog, named Peg, she was accustomed to whistle and to call, "Peg! Peg!" but only for him to hear her say, "Ah! ah!—get out with you!" To a green parrot, which was in the house for a time, she was thoroughly unkind, calling out, "Hold your noise! get out!" and in consequence the bird was given away. Whenever she is offended she says, "I will kick up a row!" and she keeps her word, the house forthwith resounding with her screams. On behaving ill she makes her *amende* with "Naughty Poll! naughty Poll!" but her tune is soon changed into "Pretty Poll! pretty Poll P—!" Polly is a great beauty. In addition to this account, I may mention that the Rev. Dr. Hooker, of Rottingdean, near Brighton, Eng., has a parrot which evinces almost equal sagacity. If a piece of tape is given it, it weaves it into a sort of basket, and will tie a knot with its beak and foot.

The imitative propensity of the parrot, amusing as it in general may be, is, however, sometimes to be guarded against, as the following instance will show: A parrot, which was kept upon a quay in a seaport town, had learned the term, with its appropriate enunciation, used by carters in backing—that is, making the horse, by a retrograde motion, place the cart or wagon in the most convenient station for loading or unloading. This term the bird one day made use of when a horse and cart had imprudently been left unattended for a short time, and the horse, obeying the mandate of the bird, continued to keep moving backwards till both were precipitated over the quay, and the unfortunate animal drowned.

Mr. Jesse gives the following account of a gray parrot:—"I have seen and heard so much of this bird, that I requested the sister of its owner to furnish me with some particulars respecting it, and I now give the account in her own agreeable manner of stating it. I will only add that its accuracy cannot be doubted.

"As you wished me to write down whatever I could collect

about my sister's wonderful parrot, I proceed to do so, only promising that I will tell you nothing but what I can vouch for having myself heard. Her laugh is quite extraordinary, and it is impossible to help joining in it oneself, more especially when in the midst of it she cries out, 'Don't make me laugh so; I shall die, I shall die;' and then continues laughing more violently than before. Her crying and sobbing are curious, and if you say, 'Poor poll, what is the matter?' she says, 'So bad, so bad; got such a cold;' and after crying some time will gradually cease, and making a noise like drawing a long breath, say, 'Better now,' and begin to laugh.

It is singular enough, that whenever she is affronted in any way she begins to cry, and when pleased to laugh. If any one happens to sneeze or cough, she says, 'What a bad cold.' One day, when the children were playing with her, the maid came into the room, and on their repeating to her several times things which the parrot had said, poll looked up and said quite plainly, 'No I didn't.' Sometimes, when she is inclined to be mischievous, the maid threatens to beat her, and she often says, 'No you won't.' She calls the cat very plainly, saying, 'Puss, puss,' and then answers, 'Mew;' but the most amusing part is, that whenever I want her to call it, and for that purpose say, 'Puss, puss,' myself, she always answers, 'Mew,' till I begin mewing, and then she begins calling 'Puss' as quickly as possible.

She imitates every kind of noise, and barks so naturally that I have known her to set all the dogs on the parade at Hampton Court barking; and I dare say, if the truth were known, wondering what was barking at them; and the consternation I have seen her cause in a party of cocks and hens by her crowing and cackling, has been the most ludicrous thing possible. She sings just like a child, and I have more than once thought it was a human being; and it is most ludicrous to hear her make what one would call a false note, and then say, 'Oh, la!' and burst out laughing at herself, beginning again quite in another key. She often performs a kind of exercise which I do not know how to describe, except by saying that it is like the lance exercise. She puts her claw behind her, first on one side and then on the other, then in front, and round her head, and whilst doing so keeps saying, 'Come on, come on,' and when finished says, 'Bravo, beautiful!' and draws herself up. Before I was as well acquainted with her as I am now, she would stare in my face and say, 'How d'ye do, ma'am?' This she invariably does to strangers. One day I went into the room where she was, and said, to try her, 'Poll, where is Dayne gone!' and to my astonishment and almost dismay she said, 'Down stairs.' I cannot at this moment recollect anything more that I can vouch for myself, and I do not choose to trust what I am told; but from what I have myself seen and heard, she has almost made me believe in transmigration."

The Gray Parrot is a native of Western Africa. Like most of its kind it is said to breed in the hollows of decayed trees; and the instinctive propensity for such situations does not appear to desert it even in a state of captivity, for Buffon mentions a pair in France that, for five or six years successively, produced and brought up their young, and that the place they selected for this purpose was a cask partly filled with saw-dust.

The longevity of the feathered race, we believe, in general far exceeds what is commonly supposed; at least, if we may judge from the age attained by various birds, even when subjected to captivity and confinement. Thus, we have instances of eagles living for half a century; the same of ravens, geese, and other large birds, as well as among the smaller kinds usually kept caged. The gray parrot, like many others of its tribe, often lives to a great age, and we are told of individuals attaining to fifty, sixty, or even a hundred years. According to Le Vaillant, one which lived in the family of Mr. Meninck Huyser, at Amsterdam, for thirty-two years, had previously passed forty-one with that gentleman's uncle; and there can be no doubt it must have been two or three years old at the time of its arrival in Europe. When Le Vaillant saw it, the bird was in a state of entire decrepitude, and in a kind of lethargic condition, its sight and memory being both gone, and it was fed at intervals with biscuits soaked in Madeira wine. In the time of its youth and vigor, it had been distinguished for its colloquial powers and distinct enunciation, and was of so docile and obedient a disposition as to fetch its master's slippers when required, as well as to call the servants. At the age of sixty its memory began to fail, and instead of acquiring any new phrase, it began to lose those it had before attained, and to intermix in a discordant manner the words of its former language. It moulted every year regularly till the age of sixty-five, when this process grew irregular, and the tail became yellow, after which no further change of plumage took place.

The intelligence of the parrot has often, we conceive, been greatly exaggerated. It is certainly true that these birds exhibit the most perfect brain which is found among the feathered race. But the parrot's imitation seems purely mechanical; it articulates words indeed, but this cannot be regarded as a true language. In the same manner that an air is taught to a linné with a bird-organ, so are words taught to a parrot, and he repeats them without knowing wherefore.

Our illustration is taken from Jan Steen's celebrated painting "Feeding the Pet Parrot."

Bunker Hill Monument

This monument stands in the center of the grounds included within the breast-works of the old redoubt on Breed's Hill. Its sides are precisely parallel with those

of the redoubt. It is composed of Quincy granite, and is two hundred and twenty-one feet in height. The foundation is composed of six courses of stone, and extends twelve feet below the surface of the ground and base of the shaft. The four sides of the foundation extend about fifty feet horizontally. There are in the whole pile ninety courses of stone, six of them below the surface of the ground and eighty-four above. The foundation is laid in lime and mortar; the other parts of the structure in lime and mortar, mixed with cinders, iron filings, and Springfield hydraulic cement.

The base of the obelisk is thirty feet square; at the spring of the apex fifteen feet. Inside of the shaft is a round hollow cone, the outside diameter of which, at the bottom, is ten feet, and at the top six feet. Around this inner shaft winds a spiral flight of stone steps, two hundred and ninety-five in number. In both the cone and shaft are numerous little apertures for the purpose of ventilation and light. The observatory, or chamber at the top of the monument, is seventeen feet in height and eleven in diameter. It has four windows, one on each side, which are provided with iron shutters. The cap-piece of the apex is a single stone, three feet six inches in thickness and four feet square at its base. It weighs two and a half tons.

Almost fifty years had elapsed from the time of the battle before a movement was made to erect a commemorative monument on Breed's Hill. An association for the purpose was founded in 1822; and to give *elal* to the transaction and to excite enthusiasm in favor of the work, General La Fayette, then "the Nation's guest," was invited to lay the corner stone. Accordingly, on the 17th of June, 1825, the fiftieth anniversary of the battle, that revered patriot performed the interesting ceremony, and the Hon. Daniel Webster pronounced an oration on the occasion, in the midst of an immense concourse of people. Forty survivors of the battle were present, and on no occasion did La Fayette meet so many of his fellow-soldiers in our Revolution as at that time. The plan of the monument was not then decided upon; but one by Solomon Willard, of Boston, having been approved, the present structure was commenced in 1827 by James Savage, of the same city. In the course of a little more than a year the work was suspended on account of a want of funds, about fifty-six thousand dollars having been collected and expended. The work was resumed in 1834, and again suspended within a year for the same cause, about twenty thousand dollars more having been expended.

In 1840 the ladies moved in the matter. A fair was announced to be held in Boston, and every female in the United States was invited to contribute some production of her own hands to the exhibition. The fair was held at Faneuil Hall in September, 1840. The proceeds amounted to sufficient, in connection with some private donations, to complete the structure, and within a few weeks subsequently a contract was made with Mr. Savage to finish it for forty-three thousand dollars. The last stone of the apex was raised at about six o'clock on the morning of the 23rd of July, 1842. Edward Carnes, Jr., of Charlestown, accompanied its ascent, waving the American flag as he went up, while the interesting event was announced to the surrounding country by the roar of cannon. On the 17th of June, 1843, the monument was dedicated; on which occasion the Hon. Daniel Webster was again the orator, and vast was the audience of citizens and military assembled there. The President of the United States (Mr. Tyler) and his whole Cabinet were present.

In the top of the monument are two cannons, named respectively "Hancock" and "Adams," which formerly belonged to the Ancient and Honorable Artillery Company. The "Adams" was burst by them in firing a salute. The following is the inscription upon the two guns:

"SACRED TO LIBERTY."

"This is one of the four cannons which constituted the whole train of field artillery possessed by the British Colonies of North America at the commencement of the war, on the 19th of April, 1775. This cannon and its fellow, belonging to a number of Citizens of Boston, were used in many engagements during the war. The other two, the property of the Government of Massachusetts, were taken by the enemy.

By order of the United States, in Congress assembled, May 19th, 1778."

The Origin of Vaccination.

In the year 1716, the celebrated Lady Mary Wortley Montague was sojourning in Turkey in Europe, and the following extract is from a letter written to one of her friends in England:

"Apropos of distempers, I am going to tell you a thing that will make you wish yourself here. The small-pox, so fatal and so general amongst us, is here entirely harmless by the invention of *ingrafting*, which is the term they give it. There is a set of old women who make it their business to perform the operation every Autumn, in the month of September, when the great heat is abated. People send to one another to know if any of their family has a mind to have the small-pox. They make parties for this purpose, and when they are met (commonly fifteen or sixteen together) the old woman comes with a nut-shell full of the matter of the best sort of small-pox, and asks what vein you please to have opened. She immediately rips open that you offer to her with a large needle (which gives you no more pain than a common scratch) and puts into the vein as much matter as can lie upon the head of her needle, and after that binds up the little wound with a hollow bit of shell; and, in this manner, opens four or five veins. The Grecians have commonly the superstition of opening one in the middle of the forehead, one in each arm, and one on the breast, to mark the sign of the cross; but this has a very ill effect, all these wounds leaving little scars, and is not done by those who are not superstitious, who choose to have them in the legs or that part of the arm which is concealed. The children or young patients play together all the rest of the day, and are in perfect health to the eighth. Then the fever begins to seize them, and they keep their beds two days, very seldom three. They have very rarely above twenty or thirty sores on their faces, which never mark, and in eight days' time are as well as before their illness. Where they are wounded, there remain running sores during the distemper, which, I don't doubt, is a great relief to it. Every year, thousands undergo this operation; and the French Ambassador says, pleasantly, that they take the small-pox here by way of diversion, as they take the waters in other countries.

"There is no example of any one who has died in it, and you may believe that I am well satisfied of the safety of this experiment since I intend to try it on my dear little son. I am patriot enough to take pains to bring this useful invention into fashion in England, and I should not fail to write to some of our doctors very particularly about it if I knew any one of them that I thought had virtue enough to destroy such a considerable branch of their revenue for the good of mankind. But that distemper is too beneficial to them to expose to all their resentment the hardy wight who should undertake to put an end to it. Perhaps, if I live to return, I may, however, have courage to war with them."

The discovery of Dr. Jenner of the efficacy of vaccine matter took place several years subsequent to the date of this letter, and related only to the *kind* of virus. With whom and how originated the idea of *ingrafting* it would be interesting to know.

How the Spider Builds.

Having first decided upon the general location of her net, the spider probably takes position head downward upon the "leeward" side of a twig or small branch. or upon its top, and then, turning her abdomen outward, expresses from her spinners a drop of gum, which instantly dries so as to form a fine end of a silken thread. This is taken by the wind (and careful experiments have proved that a current of air is absolutely necessary to the extension of the line) and wafted outward, waving from side to side, and usually tending upward from its extreme lightness, until at last it touches some other branch at a greater or less distance from the first. When this stoppage is perceived by the spider, she turns about and pulls in the slack line, until she is sure that the other end is fast. If it yields, she tries again and again, until successful. If it holds, she attaches her end firmly by pressing her spinners upon the wood, so as to include the line. The first and most important step in the construction of all geometrical nets has now been taken, and the spider can meet with no serious difficulty in completing her task.

Nothing to Show for It.

Ancient fable relates that the fifty daughters of Danaus, for a certain crime, were compelled to perform the endless task of filling bottomless buckets with water. Not only are these ill-fated women still at their hopeless task, but in this country, to say nothing of any other, how many thousands of their sisters are at the same never-ending work!

It is the standing wonder of most women and all men where the housewife's time goes to, and why she has so little to show for it. "A place for everything and everything in its place." "A time for everything and everything in its time,"—these two maxims ought of themselves to keep things straight and bring up every Saturday night with the week's work entirely done and nothing left over for the next six secular days. The "routine work does itself," so to speak, and ought to leave abundant leisure, as it appears, for accomplishing a great deal beside.

Nothing seems easier to the casual observer, who has not been behind the scenes, than to keep a house in perfect order: Are there not closets, bureaus, shelves, pantries, chests, rows of hooks in which and on which is a place for everything? And when everything is in its place, the "eternal fitness of things" makes one really feel that nothing is easier than order system, neatness, perfection. Brooms, dusters, house-cloths in abundance, leave no excuse for dirt or finger-marks anywhere, and if there are buttons and darning-cotton in the work basket, what is more natural than that the button should gravitate to its place on the neck-band or waist-band, and that the perforations in hose should close up of themselves?

Three meals a day? Of course. Snowy bread, delicious mashed potato, savory meat, golden butter—these are the mere necessities of life; and when the raw materials are provided, why should they ever be wanting? If company comes unexpectedly no inconvenience results; the ironing, like knitting work, can be put away and finished some other time; there are in the store-rooms cans of fruits, jars of cake, crisp pastries, waiting the emergency, and for the time, hospitality is the duty and the pleasure of the hour.

Winter comes on. The bedding must be looked after, unless everything needed has been attended to in the proper time, the spring; new sheets and pillow-slips are to be got ready, new comforts pierced and knotted, and ample provision made for the coldest of frosty nights. The children's clothes need going over; a patch here, a darn there, sponging everywhere, will make some suits almost as good as new, and only a little time is required for this. Just get the machinery out and set it in motion, and somehow the work does itself. When the little ones, with clean hands and faces, neatly combed hair, and books nicely covered, have gone to school, when the morning work is done, all the picking up and putting away attended to, the sitting-room freshly dusted, the plants watered, the bird fed, the book-shelves arranged, the newspapers folded, then there is time for at least thinking which one of all the "little things" that need doing is the most important. By the time the selection is made and the work begun, twelve o'clock comes and brings with it muddy feet and hungry stomachs, bright faces and loud voices, all with demands of their own.

Nothing to show for it. Meantime, under the constant daily supervision of patient, industrious, motherly hands, and the all-enduring love of a motherly heart, grow up stalwart, healthful bodies, strong, robust characters, systematic, orderly men and women; these go out in life and show on a large scale the virtues of cleanliness in heart and life which they have learned little by little at their mother's side; and those to create in the nooks and byways of the great world, cozy, tidy, happy homes, from which may go forth another generation of faithful workers. And this is all there is to show for it.

The Insects of Commerce.

The trade in insects is one which is far more extended than is generally supposed. The cochineal insect is found in various countries near the tropics, and those most largely exported are found in Mexico. They are of two kinds, wild and cultivated, the latter being nearly twice the size of the former. Many thousands of people gain a livelihood by picking them from cactus plants, on which they grow, knocking them off with a blunt knife, and killing them with boiling water. They are then spread out to dry, after which they are packed in bags

and sent all over the earth for dyeing purposes, the color they give being a brilliant red. It was formerly thought that they were a vegetable product. It is said that every pound contains some seventy thousand of these insects. So the supply must be very great to keep the markets of the world so well supplied.

Lac-dye, another beautiful red or a very deep pink, is also the work of another insect, though it, too, has been counted among the vegetable products. So nut-galls are formed from a puncture in the young oak, by a species of fly, which there deposits her eggs. An irritating fluid which goes with it, causes the limb to swell like a tumor, which is often the size of a marble. These balls are gathered, and are of much use in medicine, in dyeing, and in the manufacture of ink.

Though we do not trade extensively in edible insects, we yet deal largely in the products of the busy bee, and sell fine swarms at a handsome figure.

Some one suggests that in those countries where locusts are eaten, the fashion first began because the locusts left them nothing else to eat. Certainly there were enough grasshoppers at the West of late years to give the people a chance to try what goodness there was in a very near kin to the locust. Some curious people actually did try the experiment, cooking them in various ways—an editor was among them—but I do not think any of them cared to take the second meal. If they only could turn over the crop to some of those hungry Orientals, what a big thing they could make of the harvest.

But the silk-worm is probably the insect which has done the most for commerce, and has given employment to millions of people. A short crop among the raisers of this worm, is a cause of as much solicitude as a failure of the wheat crop with us. It starts in a little egg, the size of a tiny bead, which it much resembles. It goes through various changes in quick succession, eating between times most voraciously of the mulberry leaves scattered over the frame on which it is laid. I have heard a small army of them feeding, and it sounded like a sharp summer shower. They were gentle, kind-looking little creatures, though repulsive at first sight. When full grown the room was filled with branches cut from the trees, and the poor worm crawled off to choose a spot in which to weave itself a winding-sheet. In about twenty days, the chrysalis gnaws its way through, and emerges a white-winged moth, which lays its eggs and dies. But where the silk is the object, and not the rearing of silk-worms, the cocoons are boiled or baked before the worm gnaws out, and so cuts the threads.

This is becoming more and more an industry in our own country, and American silk is taking a high rank as a most excellent and serviceable article.

The Wandering Minstrel.

Many years ago, and during that time so well known as the "Dark Ages," when our language was but half formed, our literature almost without a beginning, and the mass of the people in a deplorable state of ignorance, there could be seen, at intervals, the wandering minstrel, roaming from land to land, with harp slung over his back, or, it may be, borne by some faithful servant. Now stooping beneath some wide spreading tree, now adding mirth to an evening party, or forming a welcome guest in the halls of kings, and of men of noble blood, he roused their spirits by his stirring ballads of love and war.

He formed a striking contrast to the cell-loving monk, whose seclusive habits cut off all intercourse with the men about him, and, consequently, the feeling that existed between the two was far from having any tendency to friendship.

The minstrel was naturally very popular. He was known to all and welcomed by all. It can be imagined with what delight his coming was hailed by the people whose only instruction consisted, for the most part, of what he had to tell them. Reading was unknown to the majority; and even had it been taught them, the scarcity of books, and the want of all other literature, would have precluded them from benefiting very much from such an acquirement. Very few festivals took place without the cheering mirth of the minstrel.

He was present on all state occasions, at tournaments, at nuptials, and even on any solemn occasions. It would seem that the mirth on any occasion could not be complete without his presence. It must, however, be remembered, that he was something more than a minstrel

in our sense of the word. His abilities were not exhausted in the recital of poems, or in performing upon the harp.

In him were combined a multiplicity of talents. Besides his skill as a poet and musician, he possessed wonderful imitative powers, and by his gestures, which are now included in the professions of juggler and tumbler, gave additional amusement to his audience.

And yet his vocation was not very much looked down upon by the higher classes. It was in the garb and in the character of a minstrel, that Alfred entered the camp of the Danes; and the fact of his having a servant behind him to bear his harp, only confirms what is known to have been customary with many of the minstrels. The dress, which was peculiar to the minstrels, and which Alfred must have assumed, consisted of a long green gown, with sleeves to the middle of the leg. A large red belt girted his waist; and there was not unfrequently a red ribbon about his neck. His *tonsure* somewhat resembled that of the monks. A pair of soot-blackened boots, and a few minor adornments completed his attire.

In early Grecian times, the bards, of whom Homer was a specimen, sang their own lays to the accompaniment of the lyre, as did the "scalds" of Northern Europe some centuries after. There was, however, another class of reciters, known as the rhapsodists, who neither rehearsed their own verses nor used any manner of instrument, relying solely upon the effect they were capable of producing by their voice and gestures. Like the minstrels, they went from one place to another, known by the laurel branch they bore, just as the minstrels were distinguished by their peculiar badge—a wrest turning or key.

The gradual downfall of minstrelsy took away many of the attributes which formerly belonged to the wandering life of the bard. The minstrel was only to be known as the musician and poet, while feats of jugglery and gesturing were taken up by another professional class. The minstrel is now the poet; the juggler and tumbler are now the professions followed only by the lowest classes of people.

True Nobility.

It does not consist in a pompous display of wealth, a high sounding name, a long line of ancestry whom the world delighted to honor; nor yet in jeweled crowns, steel-embazoned armor or costly apparel of purple and fine linen. Indeed, these adjuncts as frequently indicate the absence of a truly noble heart and mind as otherwise. It too often happens that the form and not the substance of things is the object desired, and as so many are incapable of distinguishing between appearance and reality, it is a very easy matter to dazzle their eyes with a false display of greatness and goodness. And since the world sets so much value on a lofty title, it is too frequently the case that its possessor makes little effort to merit the name he bears. The conventional rules of *la beau monde* have perverted the word so that its true meaning could scarcely be recognized from the manner in which it is at present used. That man is not to be relied upon who makes his name and inheritance the stepping-stone to his entrance into good society. Divest him of these, and, like an imitation statue, he will fall to the ground and crumble away, unless possessed of some internal worth. Next to downright hypocrisy there is nothing more ignoble than to base one's standing on the merits of others.

It is neither an evidence of a noble mind and heart to do a praiseworthy act at the risk of personal safety, when you have hopes of a liberal reward. There are many who will expose their lives to save that of another when they have reason to believe that the risk involved will be amply remunerated, whereas nine-tenths will refuse to do so when they have no such expectations. We pay homage to men who have slain thousands in the bloody field of war, and won many battles for the sake of victory, and call them great; yet a rough sailor who plunges into the sea to save a drowning child for humanity's sake alone, has a far nobler heart beating within his sunburnt bosom than the victor of a thousand battles. Were I called upon to suggest four words as synonymous with the word nobility, I would say truth, honesty, bravery and charity.



OVER THE RIVER.

BY MIRA LIZZIE DONELSON.

Over the river, over the river—
The river silent and deep—
When the boats are moored on the shadow shore,
And the waves are rocked to sleep;
When the mists so pale, like a bridal veil,
Lie down on the limpid tide,
I hear sweet sounds in the still night-time,
From the flowing river's side;
And the boat recedes from the earthly strand,
Out o'er the liquid lea—
Over the river, the deep dark river,
My darlings have gone from me.

Over the river, over the river,
Once, in Summer time,
The boatman's call we faintly heard,
Like a vesper's distant chime;
And a being fair, with soft dark hair,
Paused by the river's side,
For the snowy boats with the golden oars
That lay on the sleeping tide;
And the boatman's eyes gazed into hers,
With their misty dreamlike hue—
Over the river, the silent river,
She passed the shadows through.

Over the river, over the river,
Scarce fifteen moons ago,
Went a pale young bride with fair, slight form,
And a brow as pure as snow;
And music low, with a silver flow,
Swept down from the starry skies,
As the shadows slept in her curling hair,
And darkened her twilight eyes,
Still the boat swept on to the spirit shore,
With a motion light and free—
Over the river, the cold dark river,
My sister has gone from me.

Over the river, over the river,
When the echoes are asleep,
I hear the dip of the golden oars,
In the waters cold and deep;
And the boatman's call, when the shadows fall,
Floats out on the evening air,
And the light winds kiss his marble brow,
And play with his wavy hair,
And I hear the notes of an angel's harp,
As they sweep o'er the liquid lea—
Over the river, the peaceful river,
They are calling—calling for me.

Hear as little as possible of that which is to the prejudice of other people.

Influence of Commerce.

One of the most distinctive and characterizing features of the age in which we live, is the rapid and steady progress of the influence of commerce upon the social condition of man. Commerce doubtless originated in the first wants of man which he was unable to satisfy without recourse to others; but it could not have existed as a distinct occupation until a certain degree of luxury had been attained. The adventurous sought in other lands what could not be found at home, and intercourse between countries having thus been commenced, refinement and civilization progressed as it increased. While these pioneers of commerce travelled from country to country, engaged in traffic with men of all nationalities, they imperceptibly adopted customs which assimilated them in manners, and thus the merchant became an instrument in advancing the condition of nations.

The effect of commerce is soonest shown in the language of a nation. The farther a nation's commerce extends the more extensive and comprehensive its language will become; for every commodity, every new idea or invention arising from the intercourse of nations, is followed by a name or meet expression; so that as the commerce of a country increases, its language becomes more copious from the addition of words from various ancient and modern tongues. Commerce also has great influence upon the progress of art and science. By bringing into contact with each other the talented and learned of all countries, it arouses the desire for superiority which is inherent in human nature, and progress is thereby greatly promoted.

The spirit of commerce, too, is the spirit of peace, and peace is the element of all moral progress. Through the agency of commerce the relative position of nations has been changed; whereas they were upon a footing of barbarism. They are now placed upon a footing of friendship and civilization.

We are indebted to commerce for printing, the laboratory, the observatory, and for science in general, and its influence has contributed more actively to abstruse search and scientific investigation than any other one influence.

Commerce brings to us the products of every zone, treasures from every kingdom, and the discoveries of every land and age, so that through its agency we not only have all that the earth brings forth, but also the benefit of the education and development which is given in searching them out and bringing them together.

After what has already been said, it is scarcely necessary to add that commerce tends to refinement. The natural and artificial productions of one country, with the refinements of its people, pass to another; thus we have marbles and paintings from Italy, music from Germany, costly and beautiful fabrics from France, to adorn our homes and persons, and to gratify our love for the beautiful in form, color and sound. It matters not where any good is created, commerce imparts universality to it.

But while considering the advantages of commerce we must not neglect to notice its disadvantages. The most significant of the evil effects of commerce is the facility which it affords for the diffusion of evil. It brings through the same channel falsehood and truth indiscriminately. In commercial transactions the temptations are to dishonesty and untruth. That this is so the list of adulterations and frauds continually thrown upon our markets is sufficient proof. To such an extent had this taken place, even in earlier times, that Dr. Chalmers expressed his belief that commerce in its lower form was incompatible with manliness and honor; and Goldsmith, in "The Traveller," says: "Honor sinks where commerce long prevails." But when the spirit of selfishness is exorcised from commerce it will become an influence noble and omnipotent for good.

It is like a great arterial system spreading over the world, and it has created for itself a code of international laws which to some extent makes one empire of all nations.

If you search the history of man from the beginning till now, you will not find among all the arts, inventions and institutions of the race one so beneficent, one which shows so broad a stride of progress as this. And it promises to go on extending its sway till it has given rules to the conduct of nations, provided redress for all wrongs, and thus ruled out forever all war from the earth.

T. E. W.

Great Writers as Conversers.

It is said that neither Pope nor Dryden was brilliant in conversation—the one being too “saturnine and reserved,” and the other too much a friend of the author of the Essay on Man.

Neither Addison nor Cowper shone in society, and the same is true of the celebrated French authors, Descartes, Moliere, La Fontaine and Buffon. Addison, indeed, could talk charmingly to one or two friends, but he was shy and absent before strangers. To use his own happy metaphor, he could draw bills for a thousand pounds, though he had not a guinea in his pocket.

Hume's writings were so superior to his conversation, that Horace Walpole used to say that he understood nothing till he had written upon it.

Goldsmith was a blundering converser, and showed hardly a spark of the genius that blazes through his writings. Occasionally he blurted out a good thing, as when he applied to Johnson's sayings, in one of Cibber's plays: “There is no arguing with Johnson, for when his pistol misses fire, he knocks down his adversary with the butt end of it.” But generally he “talked like poor Poll,” and when he made an accidental hit, soon neutralized its effects by saying something very foolish.

Neither Corneille, the great French dramatist, nor Marmontel, the novelist, were masters of the intellectual foils.

Nicolle said of a sparkling wit: “He vanquishes me in the drawing-room, but surrenders to me at discretion on the stairs.”

The eloquent Rousseau, whose writings have bewitched thousands, confessed that when forced to open his mouth he infallibly talked nonsense, “I hastily gobble over a number of words without ideas, happy only when they chance to mean nothing; thus endeavoring to conquer or hide my incapacity I rarely fail to show it.”

The witty Charles II., who was so charmed with the humor of Hudibras that he caused himself to be introduced privately to the author, found Butler an intolerably dull companion. He was confident that so stupid a fellow never wrote a book. The earl of Dorset, who sought an interview with the great satirist, was similarly disappointed. Taking three bottles of wine with him, he found the poet dull and heavy after the first had been drained, somewhat sparkling after the second bottle, and, after the third more stupid and muzzy than ever. “Your friend,” said the earl, after he had left with his introducer, “is like a nine pin—small at both ends, and great in the middle.”

The Great Bridge.

The first object that strikes the stranger, at St. Louis, is the bridge across the Mississippi. This is a magnificent piece of work, a credit to St. Louis and to the brains and muscles of the men who could conceive and execute it. To be appreciated, as Barnum says of his show, it must be seen. It is a great work—so great that it will be more of a financial success twenty years hence than now. It is ahead of this day and generation; a bigger thing than the day and generation can pay a living interest upon. On the west side the bridge shoots above the houses, then in among them, then under them, into the ground and under it, the ground gradually sloping to the river, and the bridge and the tunnel running into one another, so that it is hard to tell where the one begins and the other ends. The cost of this stupendous structure, tunnel and all, is put down at thirteen millions of dollars! Think of it, for two miles of superstructure, which is about the length of the bridge and tunnel. This is more than Cincinnati expects to pay for the Southern Railroad, or rather more than she set apart for the purpose.

The first thing a cold-blooded person asks, one who does not take glory at the regular St. Louis rates, does the bridge pay? It does not. The stock, if we are correctly informed, will be rendered worthless by the first mortgage holders, who of course, have lien. The receipts of the bridge, deducting expenses, will not pay more than two and a half per cent. on its cost. The effect of this, of course, will be to eat up the stock of the stockholder. But the rich men of St. Louis had rather have their pockets operated upon considerable than not to have the bridge. It is their pride and glory. The one big thing among big things, a section of the Great Future brought into service ahead of time.

Morlach Bag-pipers of Dalmatia.

Dalmatia is a district which lies out of the way of travel and commerce. We have no direct intercourse with it; tourists do not visit it, and it lies as a sort of lost land escaping. Dalmatia forms a narrow strip bounded by Cuatia and the province of Herzegovina, which, by its present outbreak against Turkish tyranny, has perplexed the governments in Europe, while it wins the sympathy of the people whose impulses are not guarded by policy.

In early autumn, before November sets in with its dangers, you can run down the Adriatic and enjoy the silvery waters, the clear tints, the mountains that seem to float in a light amber air. When you reach Dalmatia, which looks like a row of islands, you find a dry, rocky soil with little to repay agriculture, and flocks and herds of bony animals constitute the whole wealth of the land. Of goats alone, Dalmatia boasts more than a million.

The people are, as becomes mountain men, strong and enthusiastic. They are ignorant, but simple and loyal. So honest are they, that locks are unknown, and theft is unknown. Unfortunately, the men are indolent, and the drudgery falls to the share of the women.

Zara, the capital, is a military city; pandours, covered with gold and silver coin, meet you at every turn; but the people begin to wear an Oriental look, telling you that you have passed the limits of the west. The costumes of the women are various and striking. They generally wear a heavy linen chemise, embroidered on the sleeves and breast with a little sleeveless jacket, a skirt, a gay apron, the *apanke* or Slavonian *chaussure*, the neck and head decked with beads or coin.

Zara, long a Venetian town, still bears the look of that city, and the language is the same, dashed with a flavor of Slavonian.

The bag-pipe is a favorite instrument with the Dalmatians, and the pipers rival those of Scotland. They dance to their own music, and in dress and instrument are a study and a type of this outlying portion of the Austrian Empire.

J. J. W.

Iron in the Blood.

Probably no fact in medical or chemical science is more widely understood than that there is “iron in the blood.” As a fact it is no more remarkable than that this fluid holds potassium or sodium, or that the brain is permeated with phosphorus. The popular curiosity and interest regarding iron as it exists in the circulation have been excited by the vendors of quack remedies, alleged to contain some combination of the element. While there is much that is very absurd in the statements popularly presented, it is impossible to overlook the importance of the well-being of the individual of the few grains of iron found in the blood. If the quantity is diminished from any cause, the whole economy suffers serious derangement. We have reason to believe that when the normal quantity (about 100 grains) is reduced ten per cent. the system is sensibly affected, and the health suffers. How sensitive to all the chemical reactions going on within and around is this complex machine we call the body! But iron, among the mineral constituents of the body, does not stand alone in its important relationship. The metals exist combined with other bodies, or they are locked up in the form of salts, which are vital to the economy. There are five pounds of phosphate of lime, one of carbonate of lime, three ounces of fluoride of calcium, three and a half ounces of common salt, all of which have important offices to fill. Not one of them must be allowed to fall in quantity below the normal standard. If the lime fails, the bones give way; if salt is withheld, the blood suffers, and digestion is impaired; if phosphorus is sparingly furnished, the mind is weakened and the tendency is toward idiocy.

A Deep Well.

This well, which is over four thousand feet in depth, is in the village of Spereberg, about twenty miles distant from Berlin. It was begun about five years ago by the government authorities, to ascertain the existence of rock salt beneath the strata of gypsum occurring in the locality. At a depth of two hundred and eighty feet the salt was reached. The boring was prosecuted by steam until the final depth was attained. At the lowest point, the salt deposits still continue.

Rosewood.

It has puzzled many people, says a contemporary, to decide why the dark wood so highly valued for furniture should be called "rose-wood." Its color certainly does not look much like a rose; so we must seek for some other reason. Upon asking, we are told that when the tree is first cut the fresh wood possesses a very strong, rose-like fragrance—hence the name. There are half a dozen or more kinds of rose-wood trees. The varieties are found in South America, and in the East Indies and neighboring islands. Sometimes the trees grow so large that planks four feet broad and ten feet in length can be cut from them. These broad planks are principally used to make the tops of piano-fortes. When growing in the forest the rose-wood tree is remarkable for its beauty; but such is its value in manufactures as an ornamental wood that some of the forests where it once grew abundantly now have scarcely a single specimen. In Madras the Government has prudently had great plantations set out, in order to keep up the supply.

Charcoal.

BY JAS. P. DUFFY.

Charcoal, or lampblack, is commonly taken as the third form of carbon. This kind of carbon can be obtained in a tolerable state of purity, either by heating in a close vessel sugar, starch or some other organic substance which contains no organic constituents, or by burning oil of turpentine in a quantity of air, insufficient for its combustion.

For use in the arts charcoal is sometimes prepared by distilling wood in retorts, but more generally by burning the wood with but little access of air. Logs of wood are piled up into a large stack or mound, around a central aperture, which subsequently serves as a temporary chimney and also for the introduction of burning substances for firing the heap. The finished heap is covered with leaves, chips, sods, and a mixture of moistened earth and charcoal dust, a number of holes being left open around the bottom of the heap to allow air to enter and the products of distillation and combustion to escape. The whole is then fired at the middle, and then left to burn during three or four weeks. When the process is thought to be finished, all the holes are carefully stopped up in order to smother the fire, and the whole is left to itself until cold. The charcoal retains the form of the wood, but it occupies a smaller area than the wood; generally its bulk does not occupy more than three-fourths that of the wood, while its weight never exceeds one-fourth that of the wood. Sometimes the wood is burnt in retorts, in which case a liquid product of tar and acetic acid is found at the bottom of the retort. This product is always saved and utilized.

Upon the large scale, lampblack is made by heating tar, resin or pine knots until vapors are disengaged, and then burning those vapors in a current of air insufficient for their complete combustion. These vapors consist of compounds of carbon and hydrogen, and the supply of air being insufficient for the consuming of both, a large portion of the carbon of the material does not burn, but is deposited as a fine powder precisely similar to that which constitutes the black portion of common smoke.

The chief ingredient of printers' ink is lampblack, which is also much used in the arts as a pigment. In all its varieties charcoal is a very important chemical agent, chiefly because of the readiness and energy with which it combines with oxygen at high temperatures. At the ordinary temperature of the air, the chemical energy of charcoal is exceedingly feeble. It is, in fact, one of the most durable of substances. Specimens have been found at Pompeii and upon Egyptian mummies, the action of the air continued for centuries having exerted no appreciable influence upon it. Fence-posts which are sunk into the ground are often charred on the outside, and thus rendered more durable.

Charcoal is much employed as a disinfecting agent, being capable of removing many offensive odors from the air. Animal matter in a state of putrefaction loses all offensive odor when covered with charcoal, and the body of a dead animal buried beneath a thin layer of charcoal will gradually waste away without emitting any offensive odor.

Punishment of Drunkards in old Mexico.

The more we know of the primitive "civilized" nations (i. e., those who flourished before the beginning of history,) the more we are impressed with the evidence that drunkenness is a vice of the later ages. The ideas of temperance prevalent among the ancient Aztecs—a nation much like the Chinese, who are a temperate people—may well astonish us, though the severity of their laws in regard to it appears excessive. Mr. H. H. Bancroft says:

The young man who became drunk was conveyed to jail, and there beaten to death with clubs; but the young woman was stoned to death. In some parts, if the drunkard was a plebeian, he was sold for a slave for the first offence, and suffered death for the second; and at other times the offender's hair was cut off in the public market-place, he was then lashed through the streets, and finally his house was razed to the ground, because, they said, one who would give up his reason to the use of strong drink was unworthy to possess a house and be numbered among respectable citizens.

Cutting off the hair, as we shall see, was a mode of punishment frequently resorted to by these people, and so deep was the degradation supposed to be attached to it, that it was dreaded almost equally with death itself. Should a military man, who had gained a distinction in the wars, become drunk, he was deprived of his rank and honors, and considered thenceforth infamous. Conviction of this crime rendered the culprit ineligible for all future emoluments, and especially was he debarred from holding any public office.

A noble was invariably hanged for the first offence, his body being afterward dragged without the limits of the town and cast into a stream used for that purpose only. But a mightier influence than mere fear of the penal law restrained the Aztec nobility and gentry from drinking to excess; this influence was social law.

It was considered degrading for a person of quality to touch wine at all, even in seasons of festivity, when, as I have said, it was customary and lawful for the lower classes to indulge to a certain extent.

Wine bibbing was looked upon as a coarse pleasure, peculiar exclusively to the common people, and a member of the higher orders who was suspected of practicing the habit would have forfeited his social position, even though the law suffered him to remain unpunished. The heathen, however, seem to have recognized the natural incongruity existing between precept and practice fully as much as the most advanced Christian.

Taking Advantage of an Accident.

Three men-of-war ships—Dutch, French and English—while anchored in port, were contending with each other for the best display of sailormanship, so that the captain of each vessel determined to send aloft an active sailor to perform some deed of grace and daring. The Dutch captain sent a Dutchman, the French a Frenchman, and the English an Irishman. The Dutchman stood on the top of the mainmast with his arm extended. The Frenchman then went aloft and extended both arms. Now the Irishman thought if he could stand on the top of the mainmast with a leg and an arm extended he would be declared the most daring sailor. Nimble he climbed aloft until he reached the highest point, then he carefully balanced himself on both feet, extending his right hand with a graceful motion. Then he threw out his left leg until it came into line with his right arm. In doing so he ingloriously lost his balance and fell from the mast, crushing the rigging toward the deck. The various ropes with which he came in contact broke his fall, but his velocity was not too great to prevent his grasping a rope attached to the mainyard. To this he hung for two seconds, then, dropping lightly to the deck, landed safely on his feet. Folding his arms triumphantly, as if fall and all was in the programme, he glanced toward the rival ships and joyously exclaimed:—

"There, bate that if you can!"

A man has generally the good or ill qualities which he attributes to mankind. SHENSTONE.

IGNORANCE AND VIOLENCE.—There never was any party, faction, sect, or cabal whatsoever, in which the most ignorant were not the most violent; for a bee is not a busier animal than a blockhead.—POPE.

Dying Words of Pious Women

Under the head of "Dying Words of Pious Women" a religious journal gives the following:—"Oh, those rays of glory!" from Mrs. Clarkson when dying. "My God, I come flying to thee!" said Lady Alice Lucy. Lady Hastings said, "Oh, the greatness of the glory that is revealed to me!" Beautiful the expression of the dying poetess, Mrs. Hemans, "I feel as if I were sitting with Mary at the feet of my Redeemer, hearing the music of his voice, and learning of Him to be meek and lowly." Hannah More's last words were, "Welcome joy!" "Oh, sweet, sweet dying!" said Mrs. Talbot of Reading. "If this be dying," said Lady Glenorchy, "it is the pleasantest thing imaginable." "Victory, victory through the blood of the Lamb!" said Grace Bennett, one of the early Methodists. "I shall go to my Father this night," said Lady Huntingdon. The dying injunction of the mother of Wesley was, "Children, when I am gone, sing a song of praise to God!" To the above may be added the last words of Mrs. Manchester, who died recently in Pittsburg, aged 105 years. She said, while dying, "I was afraid God had forgotten me, he has left me in this world of sorrow so long."

The Benefit of Sunlight.

The exact reason, and the exact way of the sanitary influence of the sunlight, are not yet fully understood, but the fact is acknowledged. It is an influence which works in all kinds of diseases. Inflammatory diseases, nervous diseases, digestive troubles, are all cured by a full supply of the sun's rays. These rays assist other remedies. They work in the allopathic way upon jaundice and bilious maladies, bringing light out of darkness; and they work in the homeopathic way upon pale lymphatic disorders, changing the unhealthy pallor to the whiteness of health. The direct action of the sun upon skin is, indeed, dreaded by many, and it is not probable that any protests of a journal of health will lessen the sale of French kid gloves or drive vails out of use. A white hand and a fair cheek will still be preferred to the bronze and tan of a sun-browned skin. Some protection against the burning of the sun may be allowed. The best sanitary influence of the sunlight is not that of the hot ray directly upon the skin, but rather of the light in the air that is around the body, or, in other words, the light that envelops rather than the light that impinges upon the frame. The sunny atmosphere, more than the battery of rays, forces the frame into vigor. Reflected sunlight, if we can have plenty of it, is even better than the direct sunlight, the diffused stream, more than the exuberant fountain, dispenses the blessing. It is enough if we are only in the light, and it is not necessary to be always "under the sun." By an arrangement of pivoted mirrors, such as damsels of Amsterdam use to bring images of the street into their chambers, one may get the disk of the sun itself into the room; but there is no need of that, if the reflected light is allowed to enter freely. This light does not lose its virtue, though it may have been beaten back from wall or tower, and may have taken many paths on its capricious race from its orb in the sky. We may get all the good of the sunlight without being either burned or dazzled; without feeling too sharply the hot hand of the sun upon our head.

Life.

"Life is but a winter's day,
A journey to the tomb."

So runs the old hymn, and the words seem spoken in a doleful mood. Granting their truth, we fail to see why they should hold so much of gloom as they do. The whole idea seems stamped with indescribable sadness. Surely a winter's day is not so bad a thing; let us look at it. How often it breaks in brightness, and the glow of the sunrise throws a veil of delicate color over wide fields of white snow. The stern hills are softened and enriched with a beauty belonging solely to a winter landscape. 'Tis true, the day is short, and the sun sinks early behind the hills; but his going down, like his coming, is shrouded in beauty. Again, hillsides and valleys are wrapped in a mist of rosy light, and thus the evening and the morning are alike fair to see. The swift-fading twilight passes like a fleet, delightful dream. The cold sky is wonderfully clear, and studded with stars that seem never so bright as

when they gem a winter sky. Life may be but a winter's day, but the winter's day has a sunny side. We have found means to keep off its chill and to gather about us all its brightness. Can we not also find means to keep the chill of life's winter day from the heart, and to gather about us all its brightness?

"Life is what we make it," says one. This also may be, and probably is true. But the answer will intrude itself: We make it according to what we have to make it of and to make it with. Behind this is deep water, in which many have foundered without touching bottom. Standing on the safe-side of the unfathomless depths we can see that we are endowed with manifold capacities, among which is the power to discern good from evil; that we train, cultivate, and develop those faculties that tend to good, while suppressing and holding in restraint those that tend to evil. We may brighten the years by purity, by charity, by faith, by hope, by love; or darken them by malice, by deceit, by dishonor, by corruption.

Thus life becomes what we make it; and we make it what it is by making ourselves what we are. By all we can conceive of the spirit's life we can measure the gain that may come to us; by that also we can measure the possible, infinite loss.

Wonders of an Alabama Lake.

FROM A CORRESPONDENT.

At the Dickinson place, on Bullard Creek, Ala., near Six-mile station, is a ten-acre field which is nothing more nor less than a subterranean lake, covered with soil about eighteen inches deep. On the soil is cultivated a field of corn, which will produce thirty or forty bushels to the acre. If any one will take the trouble to dig a hole the depth of a spade handle he will find it to fill with water, and by using a hook and line fish four and five inches long can be caught. These fish are different from others in not having either scales or eyes, and are perch like in shape. The ground is a black marl, alluvial in its nature, and in all probability at one time it was an open body of water, on which was accumulated vegetable matter, which has been increased from time to time, until now it has a crust sufficiently strong and rich to produce fine corn, though it has to be cultivated by hand, as it is not strong enough to bear the weight of a horse. While nooning, the field hands catch great strings of delicate fish by merely punching a hole through the earth. A person raising on his heel and coming down suddenly can see the growing corn shake all around him. Any one having the strength to drive a rail through this crust will find on releasing it that it will disappear entirely. The whole section of country surrounding this field gives evidence of marshiness, and the least shower of rain produces an abundance of mud. But the question comes up, Has not this body an outlet? Although brackish, the water tastes as if fresh, and we have no doubt but that it is anything else than stagnant. Yet these fish are eyeless and scaleless—similar to those found in caves. It is a subject for study, and we would like to have some of our "profound" citizens investigate it.

A Family of Giants.

The most gigantic family in Europe are the O'Neals, of Queen's County, Ireland. The father stood six feet, and weighed twenty-seven stone. The mother is forty-five years of age, stands five feet two inches in height, measures round her arm twenty-six inches, across her shoulders three feet, round her waist five feet six inches, and weighs two hundred and ninety-four pounds. Her eldest son is twenty-five years of age, stands six feet two inches, weighs two hundred and fifty-seven pounds. At the present time he is a Life-Guard. All the sons and daughters were of large dimensions. Miss Ann O'Neal, the eldest daughter, is twenty years of age; she stands five feet six inches in height, and measures round the arm twenty-seven inches, across the shoulders one yard and a half, round her waist eight feet, and has the enormous weight of five hundred and forty-six pounds. Her younger sister is eighteen years of age; she stands five feet two inches in height, measures round her arm twenty-five inches, across her shoulders three feet, round her waist six feet, and weighs three hundred and twenty-two pounds. The eldest daughter is, as may well be imagined, on account of her obesity, scarcely able to walk. She appears to be uneasy on her legs, and is compelled to lean up against the wall for support.

The Human Eye.

BY B. C. MORSBEE.

It is surprising to what extent the human eye is capable of modifying itself to the extremes of light and darkness. When we first enter a dark room we cannot see the surrounding objects distinctly; but in a few moments if the room be not very dark we can see nearly as well as in the open air. Again, on emerging, we are dazzled by the intensity of light. These phenomena are caused by what is called the expansion and contraction of the pupil of the eye.

During the reign of King Charles the First, a major, of great courage and understanding, was sent to Madrid to do his king an important service. He failed in his attempt, and, in consequence, was thrown into a dark dungeon immediately after his return to England. No ray of light was ever permitted to enter his dismal cell. In this state the unfortunate gentleman lived for some weeks, when he began to discern the outlines of the walls of his prison. They grew plainer and plainer until he could distinctly see and count the stones of which they were built. Soon after he was able to see, not only the mice as they ran across the cell, but even the crumbs on which they fed. At last he was set free; but such was the effect of the darkness on his eyes that for some months afterward he could not bear the full light of the sun.

From this circumstance the truth of two scientific theories may be clearly proven: 1st—That it is impossible to produce absolute darkness in any place except an air-tight apartment. 2d—That the human eye may adapt itself to any degree of darkness the same as the eyes of nocturnal animals, though not as readily. It is plain that there must have been light in the cell, for had there been absolute darkness, no matter to what size the pupils of the eyes might have expanded, the gentleman could not have discerned a single object in his prison.

Among some savage tribes a favorite method of punishing criminals is to tie a bandage very tightly around the eyes of the prisoner. After several days he is taken to a public place where his face is turned toward the sun and the bandage is taken off. We can have but a small idea of the pain which such a punishment must cause; nor is the present pain the least to be dreaded, for the person, it is said, becomes totally blind for the remainder of his lifetime. Death at the stake is much preferable to this cruel torture, for then the prisoner has but few hours in which to suffer; but in this case he must endure a terrible torture for weeks, and months, and even years, besides losing his sight forever.

It is probable that by careful training the human eye may become so accustomed to a strong light as to be able to gaze steadily on the sun. But it is an experiment which we do not at present care to try.

The Food of the Ancients.

The diversity of substances which we find in the catalogue of articles of food, is as great as the variety with which the art or the science of cookery prepares them. The notions of the ancients on this important subject are worthy of remark. Their taste regarding meat was various. Beef they considered the most substantial food; hence it constituted the chief nourishment of their athlete. Camel's and dromedaries' flesh was much esteemed, their heels more especially. Donkey flesh was in high repute, and the wild ass brought from Africa was compared to venison.

In more modern times we find Chancellor Cupret having asses fattened for his table. The hog and the wild boar appear to have been held in high estimation. Their mode of killing swine was refined in barbarity as epicurism. Pigs were slaughtered with red-hot spits, that the blood might not be lost; stuffing a pig with assafetida was a luxury. Young bears, dogs, and foxes (the latter esteemed when fed upon grapes, were also much admired by the Romans, who were also so fond of various birds that some consular families assumed the names of those they most esteemed. Catus tells us how to drown fowls in Falernian wine, to render them more luscious and tender. Pheasants were brought over from Colchis, and deemed at one time such a rarity that one of the Ptolemies bitterly lamented his never having tasted any. Peacocks were carefully reared in the island of Samos, and sold at such a high price, that Varro inform us

they fetched yearly upwards of \$10,000 of our money. The guinea-fowl was considered delicious; but the Romans knew not the turkey, a gift which we moderns owe to the Jesuits. The ostrich was much relished. Helio-gabalus delighted in their brains, and Apicius especially commends them. The modern gastronome is, perhaps, not aware that it is to the ancients he owes his fattened duck and goose livers—the inestimable *foies gras* of France. The swan was also fattened by the Romans, who first deprived it of sight; and cranes were by no means despised by the people of taste.

While the feathered creation was doomed to form part of ancient delights, the waters yielded their share of enjoyments, and several fishes were immortalized. The carp was educated in their ponds, and rendered so tame that he came to be killed at the tinkling of his master's bell or the sound of his voice. The fame of the lamprey is generally known; and sturgeon was brought to table with triumphant pomp; but the turbot, one of which was brought to Domitian from Ancona, was considered such a splendid present that this emperor assembled the senate to admire it. The red mullet was held in such a distinguished category among genteel fishes, that three of them, although of small size, were known to fetch upwards of \$1,000. They were more appreciated when brought alive, and gradually allowed to die, when the Romans feasted their eyes in the anticipated delight of eating them, by gazing on the dying creatures as they changed color like an expiring dolphin. Snails were also a great dainty; Fulvius Herpinus was immortalized for the discovery of the art of fattening them on bran, and other articles; and Horace informs us that they were served up, broiled upon silver gridirons, to give a relish to wine. Oysters were brought from England to Rome, and frozen oysters were much extolled. Grasshoppers, locusts, and various insects, were equally acceptable to our first gastronomic legislators.

Manners in Travelling.

There are few situations in which people are placed, that so thoroughly bring out and show up their honest selves, as a long journey in a stage-coach or a railway car. If there is selfishness, or meddlesomeness, or cynicism, or irritability in an individual, it is as sure to manifest itself as do the opposite traits of benevolence, forbearance, graciousness and amiability. There are certain inconveniences that all alike must suffer from when travelling; but as a general rule, those who endure with these the most patiently are free from those same inconveniences at home; and though they suffer most keenly from them when home, they keep silence. It is a fair inference to make that those loudest in complaints of dust, flies, noise, bad fare at lunch-houses, uncongenial associations and broken sleep, come from homes where these are the rule and not the exception. The *parvenu* may be known when travelling by showy dress, a barbaric display of jewelry, elaborate and pompous manner and general assumption of superiority. Not one of these signs will be manifest in your true lady or gentleman, who will be attired plainly, be quiet and reserved in manner, and avoid notice as much as possible. Around the truly gentle there will be an air of refinement, of courtesy and of modesty, which will act as an impracticable barrier against rudeness of all sorts, so that a person of this character may travel from end to end of the land in perfect security from unseemly intrusion. There is much more to be learned in travelling than persons think. One can almost find by dextrous management an intelligent, communicative fellow-passenger, who will give valuable information of the localities along the route, and interesting character studies of the inhabitants. Conversation on general topics can be carried on with perfect propriety between entire strangers who have no other introduction than a desire for mutual entertainment and instruction from each other, and in this way many a long hour has been beguiled of its tedium and weariness, and much valuable knowledge acquired. The men and women who recognize every other man and woman as human, of like interest and passions, and as equally precious in the Divine eye with themselves, will be brought nearer and nearer to the universal heart of humanity, and by so much be lifted into the resemblance of Him who styles Himself our elder brother.

A FELLOW TRAVELLER.

Sea Birds.

How they seem to blend in the picture together—the blue, swelling waves with the white foam upon the beach, the sands at ebb tide, the sea-weed and the shells—and the great birds with their long, slender wings, making the dizzy sweep, rising and falling with a free flutter of their pinions.

How the lives of the sea-birds differ from those of the land bird. The ocean is their home, and God has ordered a fitness between them and their surroundings. Instead of fruit or insect, their food is fish; instead of wavering wings and short rapid flights, they make the steady sweep and circle over the tossing sea. No cosy, downy nests for them and their little ones, but on the bare edge of the flinty rock and beetling cliff they rear their hardy young, and early in life they commence their tempest-tossed career.

The beautiful land birds give us the sweet quavering melodious songs and trills, but the sea-fowl shouts the harsh, short calls, made to mingle with roar of wind and tide.

By the bold, rugged coast, where the ragged rocks project over the rush and foam of the waves, and echo back the thunder of the incoming tide, sweet, soft bird songs would be unheard, but the gull and its fellows swoop down, swoop up, throwing off the spray with a full, free flutter of the wings, and their wild, fierce scream cuts through the tempest's roar.

Gulls live upon fish. Other sorts of sea-birds feed upon shrimps, crabs and shell-fish to be found at low water, and although they will fly far inland they invariably return to the shore as the tide ebbs out. The sea-gull cares nothing for wind or storm, it can fly in the face of the strongest gale, and dash down upon its prey from the wildest wave. There are few more striking pictures than the steady, measured circle and dip of this calm bird, when the hurricane tears the ragged clouds and mountain billows roll and rage. Thus happily does God fit His creatures for their surroundings.

Wrecking on the Bahamas.

A writer says: "Wrecking is a branch of business for which the Bahamas have long been famous, owing to their intricate navigation. At one time this was very lucrative, but it has been falling off of late years. Formerly everything saved from a wreck was sold at auction in Nassau; now all goods not of a perishable nature and undamaged, are reshipped to the port of destination. Collusion between shipmasters and the pilots was also frequent; but increased vigilance on the part of the insurance companies has interfered with this nefarious business, while the numerous lighthouses recently erected by the Government with noble self-sacrifice have operated in the same direction.

The uncertainties attending money-making in this precarious way have their effect on the character of the people, as is the case when the element of chance enters largely into business; the prizes in the lottery are few, but are occasionally so large as to excite undue expectations, and thus unfit many for any pursuit more steady but less exciting. For months they will cruise about, watching and hoping, and, and barely kept alive on a scant supply of sugar cane and conches; then they fall in with a wreck, and make enough from it perhaps to keep them going another year. It is not a healthy or desirable state of affairs.

One Sunday morning a commotion arose quite unusual in the uncommonly quiet and orderly streets of Nassau. There was hurrying to and fro, and the sounds of voices shrill and rapid, caused by some sudden and extraordinary excitement. The wharves of the little port were thronged and positively black with eager negroes, and great activity was noticeable among the sloops and schooners. Some were discharging their cargoes of sponges, shells, fish, and cattle in hot haste; others were provisioning or setting up their rigging; others again were expeditiously hoisting their sails and heaving up their anchors; while the crews, black and white, sang songs in merry chorus, as if under the influence of great and good tidings. What could it all mean?

It means this—another vein in the Bahama gold mines had been struck, another lead discovered, and the miners were off to develop it, each hoping to be the lucky one to turn out the largest nugget, and retire on it for life. In other words, news had just been brought of the wreck of a Spanish vessel on the Lavadeir's Shoal; one hundred and fifty miles away. She was none of your wretch-

ed colliers or fruitiers, with a cargo valueless to wreckers, but a ship whose hold from keelson to deck beams was packed with a thousand tons of choice silks and stuffs for the black-eyed brunettes of Havana, just enough damaged to oblige them to be sold at auction in Nassau, where all wrecked goods must be brought for adjudication. Verily, we thought, "It's an ill wind that blows nobody any good;" the misfortune which has wrung the soul and perhaps ruined the happiness of one or two in far lands has made glad the hearts of several thousand darkies, mulattoes, and whites in the Bahamas. Here is a text for La Rochefoucauld, the modern cynic.

A Bird Story.

The intelligence of birds is well illustrated by a little incident which occurred among the feathered tribe in Vallejo very recently. A pair of young swallows commenced building a nest under the roof of a certain house. They were plainly green at the business, and judging from their general appearance they were young lovers who had just contracted the nuptial obligation. Under such circumstances it was not surprising that their first attempt to get up a household should be a failure, since it occasionally happens among wiser beings than birds that newly married couples do not regulate their domestic economy with the most profound foresight. And this attempt was an undoubted failure, for before the nest was completed down it fell. The birds did not try to rebuild it themselves, for they had probably become convinced of their own incapacity to remedy matters. But instead they disappeared for a day or two, and when they returned brought back with them an old bird, who might have been a professional architect and builder, or again might have been a sage old mother-in-law, or some other relative. But whatever were the relations sustained towards the pair, the third comer evidently understood the art of building a nest, and had no less evidently been brought to boss the job. He—or she, as the case might have been—stayed around supervising the work until it was satisfactorily completed, which occurred after a great deal of flying back and forwards and an immense deal of twittering, part of which may be accounted for if we suppose the old bird had to occasionally lecture the young pair for spending too much time in conjugal caresses, and non-attention to their business.

Route to the Pacific.

On the route to the Pacific, through the Smoky Hill country, there are some very wonderful natural monuments.

First is Castle Rock, three miles west of the stage station of that name, and six hundred and fifty miles west of St. Louis. It consists of a soft limestone, of a grey color at its base, and yellow towards the top. It is about eighty feet in height, and is half a mile from the Bluffs, of which it once formed a part. Embedded in the limestone are quantities of pebbles and shells.

These singular monuments are some fifty or sixty in number, all being of a similar composition. At a distance, they have the appearance of a ruined temple. The route in this vicinity is very dangerous, as amid these wonderful columns the wily savage finds a choice locality for his villainous method of manrading and murder.

But the action of wind, rain and frost constantly makes changes in the appearance of the columns, and ere many years have passed the impressive limestone monuments, no doubt, will yield to the elements, and "the place that once knew them will know them no more forever."

EVERY FARMER ought to have one good riding horse—that is, every farmer who keeps three horses or more. Even if he keeps but two, it is more economical to keep a saddle, and use it wherever it can be used as a substitute, than to wear and tear a harness and carriage over the miserable roads which are too generally found. A good riding horse can generally be purchased for the price of a good harness and carriage. The cost of keeping is scarcely greater if the utility and improvement in value of a well cared-for horse is taken into account. We should like to see horseback riding for both men and women become fashionable. We would far rather see a young farmer well mounted on a good, strong saddle horse, than see him riding in a sulky behind his fancy trotter simulating the air and appearance of a jockey.

The Modern Colossus.

The sentiments of cordiality between the people of France and those of the United States, which grew out of our element of Huguenot settlers, and received solid recognition by efficient aid to us, deciding our revolutionary struggle, have lately been most poetically expressed in a gift from Frenchmen to Americans, unique in its character and unexampled in its embodiment of the sentiment of a whole people. The people of France have in preparation for the people of the United States, a magnificent colossal statue of Liberty, to be placed at the entrance of the harbor of the metropolis of the country, New York. Its expense is borne entirely by private subscription, mainly individual contributions, without any aid sought or accepted from the government. The gift and its acceptance will constitute a significant act of fraternization, as sublime in its grandeur as the mass meetings in New York at the time of the revolution of 1848, when Americans and Frenchmen united in the patriotic songs of the two countries.

Never since the erection of the Rhodian Colossus has such a work been attempted—at least nothing made of similar material. That was of cast bronze, and this is to be of beaten copper. The statue will represent a female draped figure holding aloft a torch. The figure, from the sole of the foot to the crown of the head, will measure 112 feet, and the extended right arm and torch will make the total height 138 feet. Then the pedestal is to be 72 feet high, making the height above the ground 210 feet. But the apparent height will be considerably more, as the site selected on Bedloe's Island is considerably above the surrounding sea level.

To make this beautiful gift successful, the people of this country must contribute to the cost of a pedestal and its erection. Undoubtedly most of our people visiting the Centennial Exhibition will contribute something, as it is intended by Bartholdi, the artist who made the design, to have a cast of the uplifted arm on exhibition there. It is hoped and expected that the entire work of completing the statue and placing it in position will be done in time to brave the storms of our wintry Atlantic in early autumn.

A Drawing-Room Incident.

A young nobleman whose family had not been at court since the accession of Her Majesty, a fine, tall fellow of manly bearing, was presented the last. As his name, Lord George Alfred Connaught, was being announced, he passed Prince Albert and the young princess in an apparently haughty manner, without removing his chapeau. They seemed enraged, but as it might be a mistake arising from embarrassment in a young nobleman first approaching his sovereign, no notice was taken of the apparent rudeness. When he reached the Queen, however, he uncovered his head, knelt gracefully before her, kissed the proffered hand, arose, thrust his chapeau in a positive manner upon his head, and turned to address Prince Albert. The latter drew back, and flushed scarlet. It looked like an intended insult to the Prince Consort and his wife in the presence of his sovereign. A murmur of indignation ran through the throne-room.

The old Duke of Wellington, bending under the weight of seventy-eight years, and covered with decorations, stepped forward to interfere. The Lord Chamberlain, however, was before him, and when just on the point of arresting the offender, the Queen interposed, saying, "Right, right! Lord Connaught is right!" and then, turning, explained the transaction to the Prince, the young nobleman meanwhile looking on.

It was some time before this strange conduct could be understood by those present. Lord Connaught, the only person present whose head was covered, moving with great self-possession among bishops and chancellors, leaders of the Commons and dons of the Universities, the observed of all observers.

It seemed that for special services rendered to the King by a Lord Connaught in the reign of Henry VII., a right had been given by a patent in perpetuity to the senior of the house in each succeeding generation to remain with covered head in the presence of the ruling sovereign. This right had been in abeyance during the minority of the present Lord Connaught, and had been forgotten by all but the Queen. He had uncovered his head to her as a woman, but, jealous of the inherited privilege, had resumed his chapeau upon rising, and continued to wear it afterward.

Migration of the Buffalo.

There is a feature in the migratory character of the buffalo not generally known, except to hunters, and that is, that the vast body of the herd is never found in the same district of country two seasons in succession. The buffalo of North America forms an immense army, marching in one continuous circuit, but perhaps three-fourths of the entire number of which are found within a range of from two to three hundred miles. Thus, where buffaloes are abundant one year, they are fewer the next, until the great body, having completed its circuit, again makes its appearance. This circuit is completed in about four years. Its western limit is the eastern base of the Rocky Mountains, and its eastern is bounded by a marginal outline of civilization, extending from the British settlements on the north to northern Texas on the south. The range of latitude traversed has for many years been about twenty-three degrees, extending from the Cross Timbers of Texas to the tributaries of Lake Winnipeg on the north. The band travels southward on the eastern line, and northward on the western, never crossing the Rocky Mountains.

Why Bees work in the Dark.

Every one knows what fresh honey is like—a clear, yellow syrup, without any trace of solid sugar in it. After straining, it gradually assumes a crystal appearance; it candies, as the saying is, and ultimately becomes a solid mass of sugar. It has been suspected that this change is due to photographic action—the same agent which alters the molecular arrangement of the iodine of silver on the excited collodion plate and determines the formation of camphor and iodine crystals in a bottle, causes honey to assume a crystalline form. M. Scheiber enclosed strained honey in well-corked flasks, some of which he kept in perfect darkness, while the others were exposed to the light. The result has been that the portion exposed to the light soon crystallizes, while that kept in the dark remains unchanged. Hence we see why the bees are so careful to work in the dark, and why they are so careful to obscure the glass windows which are sometimes placed in their hives. The existence of the young depends on the liquidity of the saccharine food presented to them, and if light were allowed access to this, in all probability it would prove fatal to the inmates of the hive.

A Duel Fought in the Air.

Perhaps the most remarkable duel ever fought took place in 1808. It was peculiarly French in its tone, and could hardly have occurred under any other than a French state of society. M. le Grandpre and M. le Pique had a quarrel, arising out of jealousy concerning a lady. They agreed to fight a duel to settle their respective claims; and, in order that the heat of angry passion should not interfere with the polished elegance of the proceeding, they postponed the duel for a month, the lady agreeing to bestow her hand on the survivor of the two, if the other was killed; at all events, this was inferred by the two men, if not actually expressed. The duellists were to fight in the air. Two balloons were constructed alike. On the day denoted, Le Grandpre and his second entered the car of one balloon, Le Pique and his second that of the other: it was in the garden of the Tuileries, amid an immense concourse of spectators. The gentlemen were to fire, not at each other, but at each other's balloon, in order to bring it down by the escape of gas; and, as pistols might hardly have served this purpose, each aeronaut took a blunderbuss in his car. At the given signal the ropes that retained the cars were cut, and the balloons ascended. The wind was moderate, and kept the balloons at about eighty yards apart. When half a mile above the surface of the earth, a preconcerted signal for firing was given. M. le Pique fired, but missed. M. le Grandpre fired, and sent a ball through Le Pique's balloon. The balloon collapsed, the car descended with frightful rapidity, and Le Pique and his second were dashed to pieces. Le Grandpre continued his ascent triumphantly, and terminated his aerial voyage successfully.

As no roads are so rough as those that have been mended, so no sinners are so intolerant as those that have just turned saints.

COLTON.

THE NESTING OF PIGEONS,
OR;

Flocks of the Wild Birds 240 Miles Long!

"There's a flying and fluttering over there—
A storm of wings in the forest wide;
The rising pigeons deluge the air,
Enveloping the trees on every side,
To build their nests."

During October and the first days of November, small flocks of pigeons are seen swiftly passing in various directions. These are prospecting flocks, which visit every portion of the continent south of the frozen region,

top, until it breaks down, or becomes a solid mass of birds.

These pigeon roosts, as they are called, on an average will occupy a distance ten to twelve miles in diameter. I visited one in the night time that was in full blast. I traversed the dangerous places the greater part of the night, avoiding the vicinity of the large loaded trees; for the snapping and crashing of the branches soon taught me the necessity of carefulness. —The breaking limbs of the trees, the screeching and croaking voices, and the fluttering of wings that was momentarily occurring over an area of forty or fifty square miles, kept up a continuous uproar that was wonderful to contemplate.



WILD PIGEONS ROOSTING.

and return and report. Then, and not until then, do they know in what portion of the temperate zone they will take up Winter quarters. The greatest quantity and the widest district of their natural food reported, decides the matter. (The principal food of the wild pigeon consists of the acorns of various oaks, *2 obtusiloba*, *2 catesbyi*, *2 phallos*, *2 aquatica*, *2 virens*, the nuts of all the *Fagus* family, cane seeds and the nut-like seeds of various other trees and vines.)

A section of country four or five hundred miles in diameter is selected, and about the center of it the sleeping ground is located. For this they prefer an elevated country with large timber. Here they all come to sleep every night, and it is curious to see how they can pile up on the branches of a thick tree

The ground lay strewed with dead and crippled pigeons; hogs, foxes, racoons, and opossums all became so fat they could barely get out of the way.

The birds continued to occupy that roost every night for about six weeks, or until their peculiar food of that section had been consumed. (It is my opinion that the entire hosts of that species of the genus *columba*, roosted there.) And when there was no more acorns within reach, they departed to some other region where they could find something to eat. They were all gone in a single day. The value of the soil in a pigeon roost is increased a hundred per cent.

The breeding places differ from the roosting places in their greater extent. In the western countries, as the states of Ohio, Kentucky, and Indiana, these are generally in back-woods, and often extend in nearly a straight line across the country for a great way. When these

birds have frequented one of these places for some time, the appearance it exhibits is surprising. The ground is covered to the depth of several inches with their dung; all the tender grass and underwood are destroyed; the surface is strewn with large limbs of trees, broken down by the weight of the birds collecting one above another; and the trees themselves for thousands of acres killed as completely as if girdled with an axe,

"The vast expanse is dead and bare."

Not far from Shelbyville, in the state of Kentucky, some years ago, there was one of these breeding places, which stretched through the woods in nearly a north and south direction, was several miles in breadth, and was said to be upwards of forty miles in extent. Hawks and buzzards were sailing about in great numbers, and seizing the young squabs from the nests at pleasure, while from twenty feet upwards to the top of the trees, the view through the woods presented a perpetual tumult of crowding and flying multitudes of pigeons, their wings roaring like thunder. Numerous parties of the inhabitants, from all parts of the adjacent country, came with wagons, axes, beds and cooking utensils; many of them accompanied by the greater part of their families, and encamped for several days at this immense nursery. Several of them stated that the noise was so great as to terrify their horses, and that it was difficult for any person to hear another speak without bawling. On some single trees upwards of one hundred nests were found. It was dangerous to walk under these flying and fluttering millions, from the frequent fall of large branches, broken down by the weight of the multitudes above, and which in their descent often destroyed numbers of the birds themselves; while the clothes of those engaged in traversing the woods were completely covered with the excrements of the pigeons.

These circumstances were related to Wilson by many of the most respectable portion of the community in that quarter, and were confirmed in part by what he himself witnessed. "I passed," he says, "for several miles through this same breeding place, where every tree was spotted with many nests, the remains of those described; but the pigeons had abandoned this place for another sixty or eighty miles distant, where they were said to be equally numerous. From the great numbers that were constantly passing over our heads to and fro from that quarter, I had no doubt of the truth of this statement.

The food had been chiefly consumed in Kentucky; and the pigeons every morning, a little before sunrise, set out for the Indiana territory, the nearest part of which was sixty miles distant, returning before noon. I had left the public road to visit the remains of the breeding place at Shelbyville, and was traversing the woods with my gun on my way to Frankfort when, about ten o'clock, the pigeons which I had observed flying the greater part of the morning northerly, began to return in such immense numbers as I never before had witnessed. I was astonished at their appearance; they were flying with great steadiness and rapidity, and at a height above gunshot, in several strata deep, and so close together that, could shot have reached them, one discharge could not have failed of bringing down several individuals. From right to left, as far as the eye could reach, the breadth of this vast procession extended, seeming everywhere equally crowded. I took out my watch to note the time, and sat down to observe them. It was then half-past one; I sat for more than an hour, but, instead of diminution of this prodigious procession, it seemed rather to increase both in numbers and rapidity; and, anxious to reach Frankfort before night, I rose and went on. About four o'clock in the afternoon I crossed the Kentucky river, at the town of Frankfort, at which time the living torrent above my head seemed as numerous and extensive as ever. Long after this I observed them in large bodies that continued to pass for six or eight minutes, and these again were followed by other detached bodies, all moving in the same direction, till after six in the evening. The great breadth of front which this mighty multitude preserved would seem to indicate a corresponding breadth of their breeding place."

Wilson then enters into a rough calcu-

lation of the numbers of this mass, and he comes to the conclusion that its whole length was 240 miles, and that the numbers composing it amounted to 2,230,272,000 pigeons, observing that this is probably far below the actual amount. He adds that, allowing each pigeon to consume half a pint of food daily, the whole quantity would equal 17,422,000 bushels daily. Audubon confirms Wilson in every point.

I enjoyed the opportunity in the month of April, 1832, of making observations on the manners and customs of the wild pigeons, through the entire period of nest making, setting, hatching, and feeding, until they abandoned and left their young ones screaming for food. It occurred on a heavy timbered section of the Tombigbee bottom, fifteen miles in length and one and a half to two miles wide, latitude $33^{\circ} 16'$ north. The timber was very tall, consisting of oak, hickory, beech, sweet gum, and cypress—the undergrowth, cane, vines, and bushes. Here the "putchee nashoba," lost dove, as the Choctaws call the wild pigeon, nested.

I made excursions of six or seven miles through the bottom twice, during the time they were constructing their nests—they were so much engaged, they paid but little attention to me—and three other excursions after they had laid their eggs. They made their nests of small dry twigs, bits of sticks, dry leaves, and all kinds of trash found on the ground, and by the time they had completed their work the entire bottom looked black and clear of litter as if it had been swept with a broom. Not a leaf nor a stick was left, and to judge from the appearance of the scanty nests, the birds did not have half enough.

One day after incubation had commenced, three other men and myself went to the bottom to make observations. The discoveries we made filled every mind with surprise and amazement at the work that had been done by these little birds during the past eight days. Through all the before-mentioned thirty square miles of that densely timbered bottom, from as high as one's head on horseback on the saplings to the topmost limbs of the tallest trees, not a vacant spot where a nest could be crowded in, was to be found anywhere. We all searched with that object in view,

"But in every place there was built a nest,
Where a pigeon's nest could be."

The foliage of the trees had not yet unfolded, but the packed and muffled up appearance of their tops made the swamp dark as midsummer. On the large horizontal prongs of the big trees were long rows of nests, closely jammed side by side, and in all the forks, on projecting knots, and many more unlikely places, nests were found. Many on the saplings were frequently found so low that sitting on horseback one could peep into them; and finding but one egg in each, we surmised that they were not done laying. We therefore examined all we could reach in passing through seven or eight miles of the bottom. 'Twas all the same; one egg only. Every nest was occupied, and the occupant, from her reluctance to leave it, seemed to be setting. However, we still clung to the idea that they would lay another egg. Three days after we went again, but there were no more eggs; one apiece was all that was deposited at that nesting place.

It is a subject worthy of notice that no nest was found on any tree that stood on ground higher than the level of the bottom, nor even on those trees whose branches interlocked with the limbs of the low-land timber, but having their roots on higher ground at the foot of the up-land slope.

We usually arrived at the nesting ground about 8 o'clock A. M., when the whole region would be as silent as death. The setting pigeons all on their nests, but not a sound was uttered anywhere; no other bird would deign to enter the filthy district,

"The boughs with the wildwood flocks are filled,
The sweet notes of other birds are stilled."

Half an hour later, when the faithful cocks have returned, bringing breakfast for their patient mates, the roar of the rushing clouds dashing and whirling into the thick timber, with the cooing and screaming of the thankful hens, that accompanied the deafening storm of wings, is beyond the power of this pencil to portray.

Fortunately for the spectator, this stunning uproar was of short duration. Vast sections of the birds would seem to depart as if by signal, and the sudden simultaneous stroke of their million wings, would produce heavy atmospheric concussions.

At first, while the food is near, the cocks make four trips a day, but by the time the young ones come, food has become so distant that two trips a day are as much as they can make, and now both males and females go out in search of food to supply the daily increasing demands, and leaving the young ones alone, their incessant cries and clamor for food are truly annoying.

A few days later, and they made one trip per day, going out at early morn, and returning at night. At this stage of their nesting period, being at Columbus, Miss., fifty miles south of their nursery, and observing, about sundown, many flocks of pigeons passing over, returning toward their nests, I got an old shot gun, and popped one of them down, when, greatly to my

surprise, I found his crop full of live oak (*Quercus virens*) acorns. The live oaks nearest to that point, in that direction, are in Florida, five hundred miles distant, and more westerly, along the Gulf coast toward Mobile. (Pigeons have been shot near New York, having their crops still full of rice; which they could not have found nearer than the fields of Georgia and Carolina. This fact proves that they must have traveled at least six hundred miles, at the rate of a mile a minute.) I returned home the next day, and seeing no pigeons all day, began to conjecture that now they could fly, they had removed their young ones to where more convenient supplies could be obtained. When I arrived at home all were saying, "The pigeons are gone." They had all disappeared in a single day.

I concluded that I would go out early the next morning and try to find some signs left, that I could read, and ascertain if I could the cause of their departure. When I came within a mile of the place next morning, the very singular, frying, hissing and confused sound that saluted my ears was utterly inexplicable. The nearer I came to it the less I could conceive what produced it, and the louder it became, until it increased to a perfectly indescribable clamor. All the frog ponds in the world in full chorus could not compare with it. But entering the old nursery the cause of the great clamor was discovered. Standing erect in every nest were the deserted young pigeons, screaming and yelling at the top of their voices for something to eat. My near approach did not seem to alarm them. Their cries and lamentation distressed me so I had to leave.

I could not get rid of the impression the scene had made on me, and during the night I conceived a plan and prepared a large basket to take the young birds home in, besides some peas and cold bread with which to allure and catch enough to fill my basket. I intended to take them home and treat them so kindly that they would stay with me, and I would have a flock of wild pigeons of my own. When I came near with my basket I could hear no noise of any kind, and on entering the old nesting place I found every nest had been evacuated; not a bird of any description was to be seen or heard anywhere. There were no indications left whereby I could venture a conjecture of what had become of them. Opposite this place, in the Chickasaw Nation, and southwest in the Choctaw country, lay vast prairie plains, which at that time of the year (the first of May) were literally covered with strawberries, that were just beginning to ripen. Two days after the young birds had abandoned their nests, I heard they were on the prairies, and were eating all the strawberries, and that the Indian boys were killing them with sticks and packing home as many as they could carry, every day. They say, "You eat up our strawberries, we will eat you, Mr. Pigeon." They remained scattered over the extended prairie, sleeping two or three in a bunch on the ground until the strawberry season was over.

In riding over the prairie with my hunting lamp on my head, during this period, they were so often fluttering up from beneath my horse's feet that they defeated all attempts to get a venison on the prairie.

They fattened upon the strawberries, and were very nice for the table. There seemed to be such countless numbers of them spread over thousands of square miles of the country, that I thought it might be that the old birds had got with them again, and towards the close of the strawberry season, when they were all fat, I went over the river into the prairie and shot a dozen brace of them. They were all squabs, and the Indians who were camped around on the borders of the timber land, and were living on the pigeons and berries, told me that they were all "putchusee," young ones. On being asked what had become of the old ones, they replied, the old ones had picked up and fed to their hungry young all the acorns and beechnuts in the world; had starved themselves until they could hardly fly; the cries of the young were as loud as ever; that there was nothing more in reach to give them, and being about to perish themselves, they concluded to leave the starving young to their fate, and had gone away north, where food was always plenty after the ice had melted; that the young ones had remained, starving on their nests two days, when they made the discovery that they could fly, and, rising above the tall trees could see the plains, where they immediately pitched, and finding the strawberries had remained and got fat, making plenty meat for a *hituck hoppe hooma*—the red man. "But," said the Indian, "this fat feast is nearly at an end; two or three days hence and all these fat birds will be gone. A few little gangs of the old ones will come and tell them 'the food here being exhausted, you must go with us to a more northern region, where the berries are just now beginning to be plenty.'" Then making a few rapid and very wild gyrations over the far-reaching prairies, the young ones, as with the same impulse, will spring up, flapping their strong whirling wings, and will disappear like a storm cloud.

This is what the Indian told me; and so it turned out. When I went four days later to get another mess of the nice birds before they left, I found that birds, Indians, and strawberries had all disappeared. The scene was lonesome.

"The wildwood pigeon, rock'd on high,
Has coo'd his last soft note of love."

Benedict Arnold's Boyhood.

An old proverb says, "The child is father of the man;" and experience proves that the habits of early years go with one through life. Benedict Arnold was the only General in the American Revolution who dis-

graced his country. He had superior military talents, indomitable energy, and a courage equal to any emergency. The capture of Burgoyne's army was due more to Arnold than to Gates; and in the fatal expedition against Quebec, he showed rare powers of leadership. Had his character been equal to his talents, he would have won a place beside Washington and Green, inferior only to them in character.

But he began life badly, and it is not surprising that he ended it in disgrace. When a boy, he was detested for selfishness and cruelty. He took delight in torturing insects and birds, that he might watch their sufferings. He scattered pieces of glass and sharp tacks on the floor of the shop he tended, that the barefooted boys who visited it might have sore and bleeding feet. The selfish cruelty of boyhood grew stronger in manhood. It went with him into the army. He was hated by the soldiers, and distrusted by the officers, in spite of his bravery, and at last became a traitor to his country.

English, versus American Good Breeding.

There is wide fundamental distinction between English good-breeding and American good manners, which is half indicated in the difference between the words themselves. English breeding consists in a training which results in an acquired faculty of instinctively doing or avoiding particular things. A well-bred Englishman is taught from his cradle how to sit, walk, speak, eat, drink, enter a room, leave it; he is also taught, notwithstanding his behavior in this country, how to dress. He is taught, also, to whom to be respectful, whom to treat as an equal, how to bear himself toward inferiors. The result of this training is that one detects in a well-bred Englishman the result of a sort of military discipline, a stiff regularity which suggests the notion of dress parades and the manual of early life. There is indeed something in the relation between English fathers and children which suggests the drill-sergeant and raw recruits. In American families, however, in which there is any training at all, the process is quite different. The attempt is made, and certainly no one will deny that in some cases it is made with success, to give the child not a series of rigid rules for its guidance in life, but a foundation in character of urbanity and amiability which will enable him as he goes through life to make rules for himself. He is taught as much as possible that though rules of good manners are always in existence for the convenience of mankind, the foundation of good manners does not consist in rigid adhesion to one rule, but in an amiable endeavor to make social intercourse agreeable; that he is the best mannered man who is most suave, most hospitable, most benevolent, most honorable, most brave, most upright. The American who is really well brought up, is taught from the earliest moment that the first rule of good manners is to sacrifice his individuality to the general social good, and that all rules of detail are subordinate to that. He is taught that he must not be silent in the midst of people who are talking; that he must not, on the other hand, monopolize the conversation. He is taught that he must keep his feelings to himself, and not try to force his opinions down others' throats; he must not be dogmatic, obstinate or selfish. He must not even be too original. He must always consult the interest of the whole, and allow the "individual" to "wither." We do not mean to say that there are many families in America where this code of manners is taught. But there are enough (there once were more than there are now) to make such a scheme of social behavior an American ideal. There are people who continually have it in their mind when they describe that mythical character, the American gentleman. To put the matter in other words, the English ideal of manners is a practical ideal, and consists of submission to certain rules and conventions which have been adopted in England for the convenience of Englishmen. The American ideal of manners is a vague ideal, which might in Utopia be carried into practice, which regards all rules as means to ends, and which aims at substituting for the hard, systematic code of other days, a code of brotherly love, Christianity, or what Mr. Arnold calls "sweetness and light." Possibly some persons may see in this difference between the English ideal and the American ideal of manners, the fundamental difference between the two peoples which makes it so difficult for them to understand each other.

Curious Chances.

A Versailles wine-shop keeper was at work in his cellar, when suddenly the ground gave way, and he fell into what was at first thought to be a well; but on lights being brought, the hole was found to be the entrance to another wine-cellar, containing some of the best vintages of France and Spain. The archaeologists of Versailles were aroused; and their examination proves that this mysterious subterranean wine-cellar formed part of the Pavillon du Rendezvous, which Louis XV. annexed to the Pare-aux-Cerfs, about which so many queer things are related by the court chroniclers of the period. The wine is said to have attracted connoisseurs from all parts. A farmer in the neighborhood of Tavistock was as lucky in another way. In repairing an old mahogany secretaire, knocked down to him at auction, he discovered a secret drawer containing forty sovereigns, a gold enameled ring, and a lot of securities for money, one of which was a certificate for five hundred pounds in three per cent. consols. An old scrap of paper dated 1700 led to the belief that forty guineas had originally been placed there, but had been taken out in modern times and replaced by the sovereigns.

A French lady not long since frequently missed some of her valuables in a most unaccountable manner. One day her servant fell down stairs and was severely hurt. On acting the good Samaritan and pouring oil into her wounds, the mistress was astonished to find all her lost jewels in the pocket of her maid, who, it seems, had all the time been the culprit. How much oftener accidents contribute to the loss of money scarcely needs comment; but the manner in which a gentleman lost all his winnings at play is worth repetition, as an instance of the fickleness of fate. He had won nine hundred pounds at the "green table" at Monaco, and was only waiting for his laundress to bring his dozen shirts home before he should quit the place. The laundress, however, did not turn up at the appointed time, and to while away the hours, he went into the Casino. Of course he played—and not only lost all he had already won, but twelve hundred pounds besides, which made him heartily wish he had left the shirts behind, that cost him one hundred pounds apiece for the washing.

Among those who have been most remarkably affected by accidental surprises are the deaf and dumb, and tales of unknown antiquity relate how speech or hearing has been recovered or improved in this way. As a case in point: About 1750 a merchant of Cleves named Jorissen, who had become almost totally deaf, sitting one day near a harpsichord while some one was playing, and having a tobacco pipe in his mouth, the bowl of which rested accidentally against the body of the instrument, was agreeably surprised to hear all the notes in the most distinct manner. This accident was a happy one, for Jorissen soon learned, by means of a piece of hard wood placed against his teeth, the other end of which was placed against the speaker's teeth, not only to keep up a conversation, but to understand the least whisper. Other cures have been brought about less by skill than by accidental circumstances. There is the story of a Frenchman who, through a sword-wound received in a duel, suffered from internal abscesses, which forced him to walk in a stooping posture. Sometime after, becoming engaged in another affair of honor, this time with pistols, the bullet of his adversary chanced to pass exactly through the abscesses caused by the former wound, which, making them discharge, not only relieved him from the stoop, but caused him to walk with rather a stiff carriage ever afterward.

Swimming.

In the essential part of swimming, that is, the art of keeping the head above water, there is no skill required; confidence in the sustaining power of the water is the only secret; and if the novice will only dare to trust the water, and remember three simple rules, he cannot possibly sink: 1. On entering the water and attempting to swim, keep the hands and feet well below the surface, and immerse the whole body up to the chin. 2. Hollow the spine and throw the back of the head on to the shoulders. The

reason of this is in order that the solid mass of the brain may be supported by the air-filled lungs, and the eyes and nostrils kept above the surface. The mouth should be firmly closed, and respiration conducted through the nostrils, so that no water can enter. 3. Move the limbs quietly. A jerky, fussy swimmer is never a good one; and while he continues these habits will never accomplish any long distance or achieve any elegance in swimming. A slow stroke is the very essence of good swimming, and when endurance, not speed, is requisite, is the most valuable. There is nothing like the slow style for learning to swim; you may graft upon it all sorts of natatory accomplishments; but in time of danger the slow stroke is your sheet-anchor. Two novices who are wishing to learn to swim may, with a few practical directions, be very useful to each other. Of course, the sea is the easiest medium for a beginner, on account of its being of a more buoyant nature than fresh water; but if you are not by the sea, why, you must go into a shallow river or lake instead. Walk in together until you are breast-deep; then let one spread himself upon the water, while his companion supports him with one hand under the chest. Lying on the water in this way he can practice the various movements easily, and when he is tired he can exchange duties with his companion. It is astonishing how much can be done in a few days, and how soon the learner becomes independent of the supporting hand. As soon as the learner feels confidence, and that he has gained a mastery over the water, his companion should withdraw his hand, until at last its support is not needed. When the pupil can swim twenty yards in shallow water, let him try his mettle in water out of his depth, accompanied, however, by some good swimmer; but beginners should always make a practice of swimming toward the shore, if possible, so that every stroke may bring them into shallower water as they get tired. Practice in swimming, as in every other art, is the great thing to insure perfection, for as the swimmer feels his own safety in the water, and the almost impossibility of sinking if left to himself, he indulges in all sorts of gyrations and antics, to vary the monotony of simple progression. There are innumerable ornamental additions capable of being made to ordinary swimming. There is walking or treading the water, leaping like a goat, lying on the surface of the water, spinning round like a top; and a clever performer can turn somersaults in the water, "carry his leg in one hand," swim with his legs tied, and achieve numberless other remarkable diversions in the element over which he has attained mastery.

Only a Beetle.

A distinguished naturalist was once shut up in a gloomy French prison for some political reason. While there his active mind prevented him from sinking in despondency, for even his cheerless cell furnished him with food for thought and study. The very insects, which to another would have been merely objects of aversion, were to him as fresh leaves from the ever interesting book of nature.

The surgeon who visited the prison found the naturalist one day intently examining a beetle, which had intruded on his solitude. He informed the physician that the insect was a rare one, and proceeded with the enthusiasm of a naturalist to speak of its peculiarities. The physician begged that he might have it for two young friends who were ardent students of the science, and it was readily granted to him.

The students were well acquainted with the fame of the celebrated Latreille, and when they learned his situation they forthwith took active measures to secure his release. So successful were they, that the scholar was at length set at liberty, and could ever after feel that he owed his life to an insect. A month later, and all his fellow-prisoners were put on board a ship for transportation. The vessel foundered in the Bay of Biscay, and all on board perished.

How small the means God uses often to save our life, or to take it away. And if we will but look back along the line of our personal history, shall we not usually find that the most trivial events have frequently decided one whole life course. Great events do not often happen to us, and when they do the result is not what we expected. But the chance meeting with an individual, the perusal of some book, or even a paragraph in a newspaper which deeply impresses us, may be the means of changing our whole life current.

Play With the Children.

"When we were all children at home," said a friend, "nothing delighted us so much as a romp with my father; the hour of his home-coming was the happiest in all the twenty-four. I often think if all parents would play with their children, home discipline might entirely lose its severe aspect, and become a law of love." Children are not made good by the rod of power. How many parents are willing to devote an hour or so to play with the children? As a little kitten will stop lapping her milk to play with the string you draw across the floor, so will the child leave almost everything for a romp with its father or mother. In these romps, and during these moments of recreation, the great lesson of love is learned by the child. This close companionship makes the bond between parent and child which results in the future acceptance of advice and guidance. Perhaps you are naturally a dignified person, and unaccustomed to play. So when your infant first came to you, you were not accustomed to its care; but yet did not for that reason allow it to go uncared for. If you are harassed by worldly anxieties, the recreation will benefit you as much as it benefits the child, and your sleep will be the sounder for it. The experiment is worth trying.

The Eye—Some of the Common Dangers it is Subject to.

The sculptor Crawford was accustomed all his life to read lying down. To this very largely physicians attribute the loss of his eye. Very soon a cancer formed in the other which caused his death.

The great historian, Prescott, lost his eyesight when a student by a bit of bread thrown in sport by a fellow-student at table. Never be careless in such little matters. A pair of scissors or a fork, thrown in sport or anger, has often caused the loss of an eye, which the wealth of the world cannot replace.

A lady who was very desirous of finishing a set of linen for her brothers, spent almost a winter in fine stitching, sitting up often late at night over the work, in which she took great delight. The result was, the nerve of the eye was so injured that she was obliged wholly to give up sewing, knitting and reading, under the penalty of becoming perfectly blind.

A young lady who lived but ten miles by train from school, used to spend the time in studying a certain lesson while she was riding down in the morning. The result was a severe affection of the eyes, which disabled her from study for a long time. It is always hurtful to the eyes to read in the train, though we may not see the effects so plainly when it happens only occasionally.

A steady practice, like this young lady's, may produce even worse results when the system is in a bad state.

Never read by twilight, nor before eating in the morning. The little you gain in time will be doubly lost by a failing of the eyesight long before life's sundown.

A young clergyman, who is a remarkably well-read man, but whose eyes are a perfect deformity, says he ruined them by reading at night, long and intently, while he was getting his education. He seems to have no control of the lids, which twitch and move in a most grotesque manner. Do not fancy you can do as you please with your eyes, and yet have them serve you faithfully. Take as good care of them as you would of gold, for gold can never replace lost eyesight.

Leaf and Flower Impressions.

Oil a piece of white paper on one side; hold the oiled side over and in the smoke of a lamp or pipe-knot till quite black; place the leaf on the black surface—smooth side up, as the veins and fibres of the leaf show plainer on the under part. Now press on all parts of the leaf with the fingers; then take up the leaf and put the black oiled sides on the page of a book made for leaf impressions—with an extra piece of paper on the top to prevent smutting the opposite page. Press this a few moments; then remove the green leaf and the impression will be left on the page as beautifully as if it were an engraving. Flowers of single corolla can be pressed in like manner. Many of the Geranium leaves make beautiful impressions. The impression book may be made still more interesting by giving botanical classifications of each leaf and flower.

A Living Popgun.

There is a little fish, the chotodon, abounding in the eastern seas, from Ceylon to Japan, which secures its prey by means of an instrument like the blowpipe used by mischievous school-boys for projecting peas and other means of torment. The nose of the fish is a kind of sharp beak, through which he has the power of propelling a drop of water with force enough to disable a fly, preparatory to swallowing it. His aim is accurate, and he rarely misses his object. The unsuspecting fly sits on a spray of weed, a twig, a tuft of grass, near the water, pluming himself in the warm rays of the sun. The fish cautiously places himself under the fly, stealthily projects his tube from the water, takes a sure aim, and lets fly. Down drops the little innocent to be swallowed by the fish.

Celestial Oddities.

Mr. William Simpson, according to his recently published book of travels in China, saw many wonderful things in that strange country, and among others a device for raising subscriptions which we commend to the attention of energetic clergymen in their normal condition, that is to say, endeavoring to raise funds for charitable purposes. Mr. Simpson saw an enthusiast in a Buddhist temple which was in need of restoration. He was locked into a kind of small wooden sentry-box. A hole in the side enabled him to pull a string which worked the hammer of a bell. He pulled it every few minutes to attract attention to his position. He had only just room to sit upright, and a number of large nails were driven through the side of his box with the points projecting inwards. Whenever a benevolent person paid a sufficient sum, one of the nails were extracted, making the position of the inmate rather less uncomfortable; and a piece of paper was pasted on the spot with the name of the donor. This is really a very ingenious device; and we would suggest to any parish in want of a new church that they should catch a popular clergyman and immure him in such a box in some public place. The effect would no doubt be striking; and he might deliver sermons from his permanent pulpit with singular emphasis. The Chinese devotee in question was, it seems, to be shut up for three years; but it would be better to make the duration of the imprisonment depend on the amount of the subscriptions. Perhaps, however, some preachers would then have to look forward to a rather excessive term.

The most amusing page in Mr. Simpson's book is perhaps that in which he gives a specimen of pigeon-English—a language which, according to him, is spreading with great rapidity, and possibly destined to establish itself permanently as a means of communication even between natives who speak mutually unintelligible dialects. At present it can hardly be called graceful. The fragments which we give are taken from a translation of "Excelsior." We will only add that the phrase "galow" is said to be untranslatable; but that it has the effect of converting "topside" into an exclamation nearly equivalent to "excelsior." Here is a verse or two; the whole poem is given in Mr. Simpson's pages. "Maskey" means "notwithstanding"—

That mighty time begin chop-chop,
One young man walky—no can stop—
Maskey snow! maskey ice!
He carry flag vid chop so nice—

Topside-galow!

Him muchee sorry; one piecye eye
Looke sharp—so—all same y
Him talkey largey—talkey strong,
Too muchey curio—all same gong,

Topside-galow!

The stanza about the falling avalanche and the St. Bernard monks who heard a voice fall through the startled air become—

"Take care! that spoil 'um tree, young man!
Take care that ice, he wont man-man."
That coolie chin-chin he good night,
He talkey "my can go all right."

Topside-galow!

Joss-pidgeon man he soon begin
Morning-time that Joss chin-chin,
He no man see—him plenty fear
Cas some man talkey—him can hear,

Topside-galow!

We look forward to the translation of Shakspeare into this delicious dialect.



BRING FLOWERS

BY MRS. G. W. F.

Bring flowers, bright flowers, when my soul is sad,
They ever in cheerful tones are clad;
They whisper of Him, who those gems hath made,
I can see His hand in each varying shade;
They tell of His love, His mighty power,
Beautiful emblems! bring flowers, bright flowers!

Bring flowers, bright flowers, from the shady dell,
A tale of my early youth they tell—
Of the bright green lane, the oak-tree shade
Where the violets grew in the open glade,
And the rippling brook, where in summer hours
We oftentimes waded; bring flowers, bright flowers!

Bring flowers, bright flowers, their fragrance recalls
The vines that clambered the garden walls;
They were planted there by my mother's hand,
While we gathered near, her little hand,
To watch their growth with the passing hours—
How sweet the remembrance; bring flowers, bright flowers!

Bring flowers, bright flowers, their sweet perfume,
My heart to holier thoughts attune;
They tell of the land of immortal birth,
Where the weary find rest from the toils of earth,
Where the glorified spirit receives its dower—
O, when I am weary, bring flowers, bright flowers!

Bring flowers, bright flowers, to lay on my breast,
When my form is shrouded for its final rest,
And when dark earth shall pillow my head,
May sweet flowers brighten my lowly bed,
Though my spirit ascend to holier bowers,
Of my dust they are emblems; bring flowers, bright flowers!

Intelligence of Toads.

The belief is common in old countries that toads live a hundred years without partaking food, for they have been found in little cavities of rocks, where there is no apparent entrance to admit the animal, and hence the theory that the toad must have been there when the rock was formed and thrown up ages ago. The toad can live a long time on water or moisture alone, as it imbibes it rapidly through its very porous skin; but that it lives thus a hundred years is totally absurd; the most reasonable solution of the problem being, that a very small, almost imperceptible crack or opening to the cavity exists, through which an egg of a toad was washed in, and hatched or grew or developed into a fair sized creature, and there lived and thrived a reasonable time on small insects which now and then crept or drifted in.

The intelligence of a toad, as observed by Thomas Hill, is certainly remarkable. When an insect is too large to swallow, it thrusts the creature against a stone to push it down its throat. "On one occasion," said he, "when a toad was attempting to swallow a locust, the

head was down the former's throat, the hinder parts protruding. The toad then sought a stone or clod, but as none was to be found, he lowered his head and crept along, pushing the locust against the ground. But the ground was too smooth (a rolled path), and the angle at which the locust lay to the ground too small, and thus no progress was made. To increase the angle he straightened up his hind legs, but in vain. At length he threw up his hind quarters and actually stood on his head, or rather on the locust sticking out of his mouth, and, after repeating this once or twice, succeeded in getting himself outside his dinner." On another occasion he "saw a toad dispose of an earth-worm, which was so long that it had to be swallowed by sections. But while one end was in the toad's stomach the other end was coiled about his head. He waited until the worm's writhing gave him a chance, and swallowed half an inch; then taking a nip with his jaws waited for a chance to draw in another half inch. But there were so many half inches to dispose of that at length his jaws grew tired, lost their firmness of grip, and the worm crawled out five-eighths of an inch between each half inch swallowing. The toad perceiving this brought its right hand to his jaws, grasping his abdomen with his foot, and by a little effort got hold of the worm in his stomach from outside; he thus, by his foot, held fast to what he had gained by each swallow, and presently succeeded in getting the worm entirely down."

A Chinese Book for Girls.

China is making a contribution to female literature. A volume has recently been published there called "A Book for Girls." It is written in verse and contains advice and suggestions to women from the time they are born until they become grandmothers. Every line is characteristic of the position occupied by women in China. Nothing is said about intellectual development, and the duty of complete submission to the wills of their masculine relatives of every grade is constantly impressed upon them. The book opens with suggestions concerning early rising, suitable morning toilettes, and proper female occupations. Then follow warnings against idleness and foolish conversation. "A maiden must learn to guard her tongue." For each year of her life there is a particular lesson. "At seven years learn to imitate those who are grown up. At eight and nine, love your older and younger brothers and sisters, divide your food with them, and do not be angry or jealous if your share is less than theirs. At ten, be industrious, learn from your mother, and do not leave the house without permission. At eleven years you are grown—attend to making the tea, cooking the rice, and fill up your leisure time with knitting." Then follow directions regarding the great aim of existence—marriage. To the obedience exercised toward parents and relatives shall be added submission to a husband. After this come practical and economical rules about cooking and cleanliness. Humility is enjoined. "The husband is to the wife as heaven is to the earth. Your feet are bound so that you shall not leave the house and wander foolishly about in search of vain amusement." Then come suggestions to young mothers, rules for walking, resting, sitting and sleeping. "When thy daughters are grown, see that they marry well, and are obedient to their husbands and submissive to his relatives." With such views in regard to the education of women, a glimpse of the positions they occupy in other countries might well astonish the inhabitants of the Celestial Empire.

Sunlight and Health.

At the rear end of our parlor it was not very dark. Indeed, we could see to read small newspaper print at the least lighted point. At that point we put a bracket against the wall, and transferred to it a plant from the window. In four days it looked sick; in two weeks it was yellow; in five weeks it was apparently dead. Another plant was placed on the center-table, which was about half way from the front windows to the position of the first plant. At the end of five weeks that had lost its green, and was evidently failing. The girls in our parlor, who were not out more than an hour a day on an average, except when they went to places of amusement in the evening, were as pale, yellow and sickly as the plants, and we think for the same reason—a lack of full, strong light.

DIO LEWIS.

A Mechanical Eye.

No mechanic can attain distinction unless he is able to detect ordinary imperfections at sight, so that he can see if things are out of plumb, out of level, out of square, and out of proper shape; and unless he can also detect disproportioned or ill-shaped patterns. This is a great mechanical attainment. We say attainment, because it may be attained by any ordinary person. Of course there are defective eyes, as there are other defective organs; the speech, for instance, is sometimes defective, but the eye is susceptible of the same training as any other organ. The muscles, the voice, the sense of hearing, all require training. Consider how the artist must train the organ of sight in order to detect the slightest imperfection in shade, color, proportion, shape, expression, etc. Not one blacksmith in five ever attains the art of hammering square; yet it is very essential to his occupation. It is simply because he allows himself to get into a careless habit; a little training and care is all that is necessary for success.

The fact is that the eye is not half as much at fault as the heedless mind. Some carpenters acquire the careless habit of using a try-square every time they plane off a shaving, in place of giving their minds right to their business and properly training their eyes; and unless they cultivate this power of the eye, they will always be at journey-work. Look at the well-trained blacksmith; he goes across the shop, picks up the horse's foot, takes a squint, returns to his anvil, forges the shoe, and it exactly fits the foot. Contrast him with the bungler who looks at the foot, then forges the shoe, then fits the foot to it, often to the ruin of a fine horse. Now the fault lies in the proper shape for the foot; he should determine to make the shoe fit the foot in place of the foot fitting the shoe, and should follow it up until the object is accomplished.

A very good way to discipline the mechanical eye is to first measure an inch with the eye, then prove it with the rule, then measure a half-inch, then an eighth, and so on, and you will soon be able to discover at a glance the difference between a twelfth and a sixteenth of an inch; then go on to the three inches, six, twelve, and so on. Some call this guessing, but there is no guess-work about it; it is measuring with the eye and mind. Acquire the habit of criticising for imperfections every piece of work you see; do everything as nearly as you can without measuring, (without spoiling it) or as nearly as you can trust the eye with its present training. If you cannot see things mechanically, do not blame the eye for it; it is no more to blame than the mouth is because we cannot read, or the fingers because we cannot write. A person may write a very good hand with his eyes closed, the mind of course directing the hand. The eye is necessary, however, to detect imperfections.

Every occupation in life requires a mechanically-trained eye, and we should realize more than we do the great importance of properly training that organ.

Heroism of the True Orator.

We reckon the bar, the Senate, journalism and the pulpit peaceful professions, but you cannot escape the demand for courage in these, and certainly there is no true orator who is not a hero. His attitude in the rostrum or the pulpit requires that he counterbalance his oratory. He is the challenger, and must answer all comers. The orator must often stand with forward foot in the attitude of the defensive. His speech must be just ahead of the assembly, ahead of the whole human race or it is superfluous. His speech is not to be distinct from action. It is the electricity of action. It is action as the general's word of command and the chart of battle is action. He must feel that as the speaker he compromises himself; his oratory counts for something or nothing; it is the cry to the charge and the fight, or let him be silent. You go to a town meeting where the people are called to some disagreeable duty, such as often occurred during the war—on the occasion of a new draft, for instance. They go unwilling. They have spent their money once or twice very freely; they have sent their best men, the young and ardent, those of a martial temperament, who answered the first draft or the second, and it is not easy to see who else can be spared or induced to go. The silence and coldness of the assembly, after the meeting has been called to order and the purpose stated, are not very encouraging. Then a good man rises in the cold and malicious assembly,

and they say: "Well, sir, it would be pruder to be silent; why not rest, sir, on your good record. Nobody doubts your power, but for the present business we know all about it, and are tired of being pushed into patriotism by people who stay at home." But he, taking no counsel of best things, but only of the inspiration of his today's feelings, surprises them with his tidings, with his better knowledge, his larger view, his steady gaze at the new and future, of which they had not thought, and they are interested like so many children, and he gains the victory by prophesying where they expected repetition. He knew that they were looking behind, and he was looking ahead, therefore it was right to speak. Then the observers say, "What a godsend is this manner of man to a town, and what facilities he has! He is put together like a Waltham watch, or like a locomotive just finished at the Tredegar works."

RALPH WALDO EMERSON.

Be Willing to Learn.

A man progresses just as long as he is willing to learn, but progression ceases whenever he reaches that point where he places his knowledge in the balance against that of all other men. Strange as it may appear, there are a good many just such men as this in the world. Some cannot be taught anything, no matter to what branch of human knowledge it belongs. Others are perfect only in one thing, and that relates to the business they follow. It is here that this egotistical importance works the most mischief, for it always cripples a man's usefulness in life.

There is another class of persons who will accept knowledge only from those whom they acknowledge as superiors. They must know the source of every item of information, and it is rejected as error, or accepted as truth, accordingly. They never think, reason, or experiment for themselves, and hence their belief and practice exhibit a strange mixture of the practicable and impracticable, of truth and error.

The truly progressive class accept truth wherever they find it, and reject nothing because of its source. A hint dropped from the beggar's lips is just as valuable as though it came from royalty itself. These are the men who do think, reason and experiment for themselves. Like the miner, it is the gold they are after, and like him, they never reject it because it is associated with dross and dirt, but go resolutely to work to separate the pure from the impure, retaining only the former.

Recovered Treasures.

It will be remembered that the large steamship America, plying between Panama and San Francisco, was burned a few years since on the Pacific coast. Since that time various efforts have been made to recover the treasure which was on board. Some of these recent efforts have been attended with success, and the precious metals have been delivered at the Assay Office in San Francisco, Cal.

Twenty-three boxes of melted coin, weighing from 200 to 400 pounds each, were scattered around the room, and besides these were piles of bars and irregular masses of valuable metal lying around loose. Two pieces of the melted mass, with a length each of about three feet, and a width of eighteen inches, weighing one hundred pounds, looked like a section of frozen clay, bristling with oysters. These oysters were twenty dollar gold pieces, Mexican gold dollars, and half dollars of American coinage, with dimes and half dimes for little oysters, and iron spikes and bits of brass and steel to represent the shell fish that are wont to burrow in the bed of the ocean, the whole forming a valuable specimen of crustacea. In some instances the coins are welded together in rolls, and at other times they form one lava-like gob. The melted matter and the coins are a deep green color.

The large bars of bullion were less affected by the fire than the coin, and do not appear to have lost much in weight. The metal is to be recoined. Two twenty dollar gold pieces in the lot were kindly donated to the representatives of the press, who were among the reliable persons present, and had not the coins been welded to the bar they would have been taken away. Three hundred thousand dollars worth of treasure, half melted, colored by fire and the action of the water, is a curiosity that few people ever had an opportunity to see.

New Year's Day in China.

In some points the holiday resembles our Christmas Day. Friends separated by long distances are invited; relatives make strenuous efforts to partake of each other's hospitality; presents, consisting of tea, silk, edibles, and bouquets, are made; mutual congratulations tendered, and a general air of good fellowship prevails. Upon the occurrence of New Year's Day, the Celestial Government, through its organ, announces that from, say the 20th of the 12th Moon the offices will be closed for four weeks, thus enabling its employes to enjoy a month's holiday. During this period "those under Heaven" make the most of the time, and, as far as this world's goods will permit, keep up a succession of feasts and rejoicings. Before indulging in earthly pleasures, the Chinese deem it necessary to propitiate their household gods by rigidly performing various rites of a domestic nature—such as "sweeping their hearths"—which they look upon as honoring their deities; and on the eve of the New Year invariably indulge in a bath of what may be termed sweet water, as it is highly scented and fragrant; and, as the midnight hours draw near, don their most gorgeous apparel, and prostrate themselves before Heaven and Ko-tou. Being of a very ritualistic turn of mind, the altars are brilliantly illuminated, incense and gold and silver paper are burned; and, to heighten the effect, crackers are constantly let off. These ceremonies last till daylight, when the interchange of visits and the decoration of the houses are commenced, each striving to outdo his neighbor in embellishments. I cannot say much for the artistic merit, from an American's point of view; but probably the inhabitants would think my ideas barbaric. The decorations consist principally of inscriptions hung in every conceivable place on the exterior and in the interior of the house, and also suspended on long poles or masts outside of the premises. These inscriptions, as a rule, are in the form of proverbs, such as "To be happy I must be just;" others containing requests of not too modest a kind, as "May I be so learned as to bear in my memory the substance of three million novels." What a book of reference that Chinaman would make were his wish gratified! These sentences are written on various colored papers, showing what loss, if any, the family have sustained, the degree of mourning being denoted by white, blue, pale red, and scarlet, and those families to whom time has dealt kindly, and who have no loss to deplore, use a dark crimson. Flowers are also used extensively in the decorations; scarcely a house can be passed without floral designs meeting the eye. Although New Year's Day is a general holiday, yet in a walk through a Chinese city scarcely a pedestrian is to be seen, unless it be some gaily-dressed servant speeding to acquaint Mrs. Twang-Chow, by means of a small pink card, that Mrs. Chow-Twang will do herself the inestimable pleasure of paying her a visit. Were it not for this occasional sign of life, one would imagine one's self in Goldsmith's deserted village, or fancy some fearful calamity had suddenly overtaken the inhabitants, or that one were in a city of the dead. The shops are all closed, private house doors bolted, the touts, portable cook shops, beggars, street itinerants, quacks, and vendors of the celebrated razor paste for the million, have disappeared. Even for the day that common object of the Chinese street, the little dirty street Arab, is not seen; he, for once, is being treated like a human being, and taken from the mud into some hospitable house and feasted on the best. Every one on New Year's Day seems to have commenced a new life. Even the saucy boat girls, who are at all times only too ready to crack a joke or give an incisive repartee—often of a questionable nature—are on their dignity, and must not be addressed in a flippant manner, "coming down" on one rather severely if one happens to be ignorant of the habits and behavior appertaining to the day in question. Although, as I have before remarked, this is a day of general feasting, yet it bears most favorable comparison with civilized countries, or, we will say, Christian America. We see no drunkenness in the streets; and, moreover, whether the class be rich or poor, the in-door behavior is of the utmost decorum, the amusements being rational in the extreme; no ribald song or jest is to be heard or excessive drinking indulged in, each endeavoring to outvie his neighbor in correct behavior. Again I could not help contrasting this with our Western mode of enjoying a holiday. In every re-

spect the host is most punctilious, making no distinction as to the quality of his guests, but seeing that each one is properly attended to, and personally serving first one and then another with some dainty morsel with the chopsticks he has himself just used, and pledging them to drink, each guest being provided with a diminutive china cup, capable of holding about a table-spoonful. When all the cups are charged, at a given signal from the host, each guest raises his cup to his head, as a pledge, and then drinks the contents, or merely holds the cup to his lips during the time of drinking by the rest—as an ancient writer remarks, "For if the outward ceremonies are observed and kept, it is all one to them whether you drink or not."

The Magical Instrument.

There was once a poor musician who found it a hard matter to support a growing family, and a coquettish little wife of a very extravagant turn. So he cultivated the musical talents of his children that they might aid him, and was especially pains-taking with regard to a little fellow, who at three years old could play tunes on the harpsichord. The man ought to have been a Yankee to have such an invention dawn upon him as now crept through his brain. He contrived a spinnet with three banks of keys, and when all was in readiness proceeded to Paris with his instrument, whose marvelous powers he took care duly to announce on his hand-bills.

He and two little ones would play a piece, and then removing from the instrument, command the spinnet to repeat it. To the astonishment of all, a set of keys would play it through, apparently without the touch of any one's fingers. He would pretend to wind it up with a winch, which produced a most discordant sound. Then stepping back and raising his wand, he would command in an authoritative voice, "Spinnet, play such a piece," and the obedient instrument would at once comply. He would issue other orders in quick succession, of various kinds, and every time with complete success. His fame spread far and wide, and in less than five weeks he had accumulated twenty thousand crowns, enabling him to make amends for his former bad fortune.

He was sent for at length by the Court, and as he was not much accustomed to courtly ways, he wound up his machine with fearful din and discord. This was too much for the delicate nerves of royal ladies, and the Queen demanded that he should at once open the machine, and let them see what it contained. The poor, disconcerted musician stammered excuses, among them stated that he had lost the key. "Well," said the King, "cannot somebody break it open?"

With terror on his face, the poor man was forced to obey. The spinnet was opened, and there sat the doll-like figure of his little son, seated before a row of keys, on which he performed all the magic there was in the machine. The little fellow was nearly fainting from having been so much longer than common in the close box, but the smelling bottles of the ladies were plentifully tendered, and he soon revived under their kind and lavish attentions. His music was most warmly applauded, and his father reaped such a harvest of gold, from what seemed likely to be a defeat, that he could hardly gather it up.

All might have ended well enough if the greed of gain had not taken possession of the father's soul. Though he had now enough to bring up his family in comfort, he yet thirsted for more—more. So he equipped his family for a band of players, the little one being so expert that he always brought down the house. He was killed by a wound received in a farce which ended one of the acts, and died in his sixth year. A little sister, to whom he was devotedly attached, died of grief shortly afterwards.

Hygroscopic Paper.

The Journal of the Franklin Institute gives a mode of preparing a useful hygroscopic paper, by Percy Smith. A bibulous paper is impregnated with a concentrated solution of chloride of cobalt. It is very sensitive to atmospheric variations, being blue in a dry atmosphere, changing to red when the air becomes humid. Four observations a day, made for a year, with every precaution, prove that this paper may be employed to indicate readily and precisely the hygrometric state of the air.

Star Dust.

One of the most interesting curiosities to us in the Government Building, at the Centennial, was a large aerolite which weighed several tons, and had in it a hole two or three feet in diameter. From what far distant land had it descended to this earth of ours? What wondrous tales it could tell us of that mysterious realm which lies within our sight, yet so far away!

Accounts of these strange visitants from another sphere have been given to the world from very remote times; but they were formerly regarded something as tales of sea serpents are still. But in our country, so many have been observed by credible witnesses, that their existence is no more doubted than that a volcano sends out showers of somewhat similar products.

They have been found in all parts of the world, and when picked up at once are found to be warm, and even hot.

Some sixty years ago, in the town of Weston, Connecticut a brilliant meteor was seen one winter's morning moving across the sky. It disappeared, and three loud reports, like those of a cannon, quickly followed. One man was startled by a heavy crash outside his house. He found that a large stone had fallen upon a rock near his house and been shivered to pieces. The pieces were still warm, and altogether weighed about twenty pounds. In another place, not far away, another similar stone was found, which had cut its way down through the turf, and buried itself ten feet in the earth. And so they were sprinkled around through the region in chunks of from ten to two hundred pounds—any of them much too large to drop on a man's head with comfort. It is estimated that several hundred aerolites fall to the earth every year; if they may be supposed to visit the different parts of the earth impartially, and not confine themselves to those parts that are best known. No doubt the sea has closed over a vast number, and gave no sign a moment after.

Though these aerolites have no new elements, yet the elements are found in combinations differing from any thing found on the earth. This peculiarity enables scientific men to distinguish a fragment which has thus come down to us, from any other rock. For instance, all meteoric stones have in them a substance composed of iron, nickel and phosphorus, which has never been found except in aerolites.

There are many theories to account for these strange visitors. Some have supposed them to be thrown up from volcanoes on the earth; others, that they are hurled down upon us from our attendant planet, the moon, which seems to abound in volcanoes. But there are difficulties in the way of each supposition. The most likely idea seems to be that these small bodies revolve like the comets about the sun, and that the earth, by times, runs against them in their orbital motion. There is a periodicity about them which seems to depend on the seasons of the year. This goes to show that they revolve about the sun rather than the earth. They appear to be most abundant about the time of the August and November meteors, which shows there is a close connection between meteors and aerolites.

When Men are at Their Best.

Dr. Beard states that from an analysis of the lives of a thousand representative men in all the great branches of the human family, he made the discovery that the golden decade was between 40 and 50; the brazen between 20 and 30; the iron between 50 and 60. The superiority of youth and middle life over old age in original work appears all the greater when we consider the fact that all the positions of honor and prestige—professorships and public stations—are in the hands of the old. Reputation, like money and position, is mainly confined to the old. Men are not widely known until long after they have done their work that gives them their fame. Portraits of great men are delusions; statues are lies! They are taken when men have become famous, which, on the average, is at least twenty-five years after they did the work which gave them their fame. Original work requires enthusiasm. If all the original work done by men under 45 were annihilated, they would be reduced to barbarism. Men are at their best at that time when enthusiasm and experience are almost evenly balanced. This period, on an average, is from 38 to 49. After this the law is that experience increases, but enthusiasm decreases.

Neglected Truth.

The phrase "lights and shadows" is often used as a simile to illustrate the variable life-scenes of man; the human life allotment is short, too short for the accomplishment of aggregate life-work as measured by hope, determination or fancy; the measurement of time's passage, during its progress, is subject to imaginary fluctuation which originate the expressions "how long the day," or "how quickly the time flies," without intention of calling in question the regularity of the universe machinery. On the life scale, timed by the music of this mundane sphere, we have the fractional and dotted notes; the tones when harsh and out of harmony with desire run longer, and shorter when soul-enchanting music leads to forgetfulness of care. A life may be found enjoying seeming immunity from its cares; another where the opposing force of ill fortune hangs over like an evil spirit; another where experience flickers with the changing wind. So various are trial tests, that no life picture would exactly portray another; much of this variable unsatisfactoriness find its cause within ourselves.

The most effective result is accomplished by regular application of power; the most perfect art work, by the study of the agreement of parts, and while most effective, uniformity is also most pleasing, and the lack of this distinctive feature is life's peculiarity, and almost a universality. Destiny shaping should be a spiritual, mechanical work, under the control of our better nature, the mental controlling, the physical leading to result. Mind aspiration leads toward advancement, the body ruling the mind leads to the reverse; its passions and frailties contract the mental, dwarf the intellect and produce narrow-mindedness; disquietudes and repinings are but the clamorings of the body caged spirit; happiness in life is proportionately dependent upon the ratio of the exercise of mind and body rule; mental government manifests its rule by evenness and regularity of result, and might be said to occupy a mean position in the exercise of its functions, for giddy, thoughtless pleasure is also a manifest action of body ruling; at some time its shallow, fickle character is shown, the absence of soul culture, being more forcibly shown by the after great extreme of despondency. Upon this principle are founded the expressions, "Too happy to last;" "Too good to be true," and others, experience proving its transient and unsatisfactory character.

Can the troubles of life be lessened? It is necessary to a correct answer to carefully distinguish between cause and effect, between trouble so-called, and the reality, its influence upon ourselves. We perhaps may not hold an influence over the happenings that cross the pathway, but the influence of these can be limited by bringing to our aid all the fortitude at our command, enabling us to view life from a philosophical standpoint; there is a proverb to "cry for spilled milk," instead of making the effort exhausted in crying serve a good purpose in procuring a new supply.

The injurious influence of the dispirited is not confined to self, but, in despair, grasps if possible some other, having destruction in its death grip, instead of manfully with God-given energy, hope and resolution, striking out bravely, looking upward, throwing away irresolution, and though amid snow and ice, be led on by the word "excelsior."

We hear the word temperament used to describe character; it is but a word significant of will force. What is his temperament, or, in what degree is his body under will control? are synonymous questions. There is no plane which could become universal in human experience, only because the mental control is found in all stages of development. We find the estimate of condition very eccentric; we find poor that esteem themselves rich, and ever ready to respond to the call of charity, and the rich ever poor, every action evincing a sordid, stingy nature. The nearer we arrive at unanimity of sentiment the more would our actions be conducive of the general happiness of mankind. A nation is most prosperous when singleness of purpose throbs in the public heart; and the same is no less true of individuals; sympathy is the outflow of mutual feeling; a proper mental culture brought into exercise has a tendency to bring us nearer to each other; and whatever unites us makes life's burdens lighter, lessens the sharp points of contrast, and proves the parent of the cardinal virtues, for in its atmosphere Faith, Hope and Charity flourish.

LET them obey that know how to rule.—SHAKESPEARE

Human Sympathy.

It is delightful to contemplate the love of the human heart for its kind, and to believe that time strengthens and increases it. David and Jonathan, and Damon and Pythias, blaze in charming beauty on every page of modern history. In these were represented the sacred tie of brotherhood. Now brotherhood is universal. Its recognition, which was once so rare that it was like an Italian garden in the snow-beds of Lapland—like a cooling zephyr kissing the burning surface of the desert, is as a melting and diffusion of the heart of God into a sky of Summer-sunset magnificence. The chord that links man to man, man to angels, and angels to God, now vibrates from limit to limit whenever a heart from here to heaven weeps a tear.

Joseph Mazzini, moving among his kind like a soft sunbeam streaming from the first glow of the morning, and laughing amidst the frowning rocks—his character radiant with love and sympathy, and paling the blaze of beauty which nature had kindled in the gardens of his native Italy; Father Mathew, with his great heart full of sunshine and God; John Howard, so full of heaven that he left it glowing in every footprint he made; Florence Nightingale—one of the silvery links that chain the earth to the beautiful yonder—the sweet flower blooming among the briars; and our own George Peabody, are but a few stars in the sky of to-day, whose azure background is ablaze with a confluence of radiant spots of philanthropy and fraternal love to all mankind.

It was a rich legacy to have been a countryman of George Peabody. The monument of his memory cost eight and a half millions of dollars and he paid for it himself. It stands upon two continents, and the poor of London and the children of America gather in its shadow, and thank God for the nation that gave George Peabody to the world. The Queen of England did him the honor to present him with her portrait, and he did the noble queen the honor to accept it.

Down in the human heart of the nineteenth century there is a burning love for humanity. Sometimes we do not realize it ourselves. But it is there; it burns like fire in the open grate in mid-summer; it glows like the sun at noonday; it is as charming as the radiance of love can make it.

Some twenty years ago, in mid-winter, the darkness of the night was kindled into a glare by the burning of a ferry boat, which took fire when midway between Philadelphia and Camden. The mad flames leaped into the cold air, like tongues of fire from raging hell; they painted the skies with the red shadow of reckless frenzy, and in the light the grinning skeleton of death was reflected in the cakes of ice upon the surface of the Delaware in horrible distinctness. Rapidly the flames spread, and soon the ill-fated boat appeared like a moving mountain of flame. Now a stream of fire would shoot up towards the stars, and laughing, seem to taunt the mass of flame below for its indolence; then, as if to resent the indignity, another column would leap still higher, as if determined "now or never to sit beside the pale-faced moon." The sportive sparks rode on the winds, and frolicked together as if it were a May-day festival to the two hundred human beings on the deck of that burning boat. The passengers ran hither and thither—the flames streaming from many as they ran; men fell upon their knees and called to God for mercy; women screamed in the agony of despair; mothers called frantically for their lost dear ones; children were crying for parents; all was confusion and horror, and the multitude upon the wharf

ked on the feast of death in breathless agony. Now a steady stream of immortal souls began to pour from the holocaust into eternity.

Men leaped for life, but into death, upon the glistening ice; women shot like burning meteors from the flames upon the frozen bier that encased the floundering boat; mothers hurled their burning children overboard, and then followed them to the gate of heaven; the mangled and roasted dead began to lay in heaps upon the ice. The boat is coming towards the wharf—she increases her speed—the wheels beat the ice away, and between two winrows of burning corpses she brings to safety the fifty men and women that yet remain on board. Nearer and nearer she comes; every heart on the wharf is fluttering with expectancy; every man is eager to catch the rope and place the gang planks; she almost touches the wharf, and a thousand strong men rush forward with outstretched arms to catch the imperilled who are crowding towards life,

but—it cannot be possible—the boat seems swinging away—she is—she is drifting out into the stream. "Why don't you put her in?" shrieked ten thousand voices to the pilot. "It will set the shipping on fire," was the pilot's reply. An old sailor, who looked as if all the humanity had been crushed out of him by the storms, and as if his heart had been baked by blazing suns, shouted, "What is all the shipping in Philadelphia worth compared to those men and women you've got on board that boat, you infernal scoundrel?" and an Amen to the sentiment of love burst from twenty thousand throats, and frightened that boat to the dock. That is the feeling of the nineteenth century. Love is universal; fraternity is not circumscribed; culture has kindled the embers of brotherhood into a quenchless flame, and in its sweet warmth heaven plays about every heart, glows in every pathway, illumines every home. True, there are hearts and homes that do not feel it, but there are homes, too, in which the sunbeams never laugh or play; the shutters are kept barred; the curtains are never raised. Floods of sunshine without are ever trying to melt their way in, but never succeed. Thus it is with the heart or home that never feel the warming touch of sympathizing love. It is as free and brilliant as the light of noonday, and bubbles in the heart like a never-failing spring upon the mountain. From the hill-tops the birds mingle their music with the soft throbbings of the human heart and the melodies of angelic choristers, and love's harmonious strains fill the valleys of the fields and trill through the arches of the universe; on the flowers and crystal streams, in the morning's daybreak and in the evening's twilight, twinkling in the sweet light of the stars and in the gentle laughter of the moon, on all nature, animate or inanimate, there is the gentle reflection of the joys, the smiles, the divinity of love. The race is living in the vestibule of heaven—in the garden of perpetual bloom and brilliancy.

Ancient Mode of Living.

The ancient mode of living may be somewhat understood by reference to an old book, precious in the sight of the antiquarians—the household book of an Earl of Northumberland. It appears that the old earl had a large family. It consisted of six hundred and sixty-six persons, masters and servants. Fifty was the average number of his daily guests. There was a very precise sumptuary code, and given out in parcels and by rule. From midsummer to Michaelmas fresh meat was allowed; for the rest of the year salted provisions were alone admissible. Mustard was in great demand. One hundred and sixty gallons a year were used at the table; no doubt the character of the fresh and salt meat required a potent stimulus to make it go down. One bottle and a third of beer was given to each person daily. No sheets for the beds were used. The table cloths were few; they were changed but once a month, and washing days were rare. Ninety-one dozen candles served the family for a year. The family rose at six in the morning, dined at ten, and supped at four. The earl and his lady had at their breakfast something better than the rest—a quart of beer, a quart of wine, two pieces of salt fish, six red herrings, and a dish of sprats.

St. Augustine.

One of the charms of St. Augustine, Fla., is the number of feathered songsters. Among the wild thickets of its neighborhood the mocking bird finds its chosen home. Blackbirds are abundant; there is a showy red bird which has a peculiar song, and martens are numerous. Florida has likewise the eagle, the turkey buzzard in great numbers, cranes, herons, pelicans, the great woodpecker, flamingoes, roseate, spoonbills and the lovely and graceful snakehawk, or blue darter, with wings spreading three feet, soaring over the moccasin-infested swamps of Florida. Deer and wildcats and other game are abundant, and panthers may be had at short notice, and the fishing is extraordinary.

IDLENESS.—It is a mistake to imagine that only the violent passions, such as ambition and love, can triumph over the rest. Idleness, languid as she is, often masters them all; she, indeed, influences all our designs and actions, and insensibly consumes and destroys both passions and virtues.

A Singular Meeting.

What strange events happen; what wonderful coincidences spring into being along the pathway of life of some persons! I have just learned of an eventful meeting between two soldiers of the Rebellion, which I will give the readers of this paper as they came to me.

Among the various regiments recruited in Central New York, during the war, was the 160th, which was sent to the Department of the Gulf, and attached to the army under the command of General Banks. This regiment took an active part in the operations against Port Hudson, and was one of the first to enter that place at the time of its surrender, July 9, 1863. It was one of the regiments of Weltzel's Brigade, and the following year took part in an expedition to Sabine Pass, between Louisiana and Texas, where a large amount of Confederate stores were destroyed. One of the companies belonging to the 160th was raised in Palmyra, N. Y., and among its members was Mr. O. S. Stevens, who served full time, was discharged at its disbandment, and is now a merchant at Palmyra.

A few days since Mr. Stevens had occasion to go to Hartford, Conn., and left home on the 5 P. M. train on the Central Railroad. After becoming well settled in one of the sleeping cars, he discovered a tall, sandy-complexioned man in the opposite section, who, though a perfect stranger, had a large Roman nose which Stevens thought he had seen before, but failing to recall any resemblance of such a face, he gave no attention to it until the train reached Syracuse, when a long arm reached across the aisle, and a brawny hand touched him on the shoulder, the stranger at the same time asking if they stopped there for supper. To this Stevens answered in the affirmative, telling him if he would go along he would show him where to get a good lunch. At that they passed out together, and after supper the stranger offered Stevens a cigar, and then went into the smoking car, where the following conversation ensued:

"Well, stranger, I reckon you live somewhere in these parts?"

"Yes, I live in Palmyra," said Stevens.

"And I live way down in Texas. I was what you used to call a Johnny Reb during the war."

"Ah, what part of the South did you serve in?" asked Stevens.

Thrusting his long legs under the seat in front, and turning part way round, he said:

"I was at Port Hudson until your army nearly starved us out, and we had to surrender. After I was exchanged I was a Texas ranger, and finally got reconstructed."

"And you were a prisoner at Port Hudson? Do you remember seeing the 160th New York Volunteers there?" said Stevens.

"I think I do," said the Texan; "and if I'm not mistaken, that was the very regiment our boys first met."

"And do you remember trading canteens with one of them?"

"Yes, and I got a tin canteen with the initials O. S. S. on it!"

"And I got a wooden one with J. T. P. on it," said Stevens.

"That was mine," said the Texan: "my name is John T. Pond. By George! we have drank from the same canteen, old friend; give me your hand for life," and he brought a tremendous squeeze on Stevens' hand, which fairly brought the tears to his eyes.

If the conversation had been lively before it was doubly so then, Mr. Pond going into a full detail of his history before and after the war. He had left Connecticut twenty-two years ago, and had settled at Sabine Pass, and was part owner of a large mill, which Stevens' command had destroyed the year following the surrender of Port Hudson; he was now on his way to New Haven to visit a sister he had not seen in all these years. He said that he returned to Sabine after the war, rebuilt the mill, was successful, and now had secured a competence that enabled him once more to visit his friends in the North. Stevens gave him an accurate account of the destruction of his mill, the first he had ever obtained, and the two sat up and conversed the entire night, while the sleeping car conductor wondered why they did not return to occupy their berths. The next morning they parted at Hartford; and though their first meeting had been as enemies, they bid each other good-by with many regrets, such as the best of friends only know.

Silk Culture.

According to history, the silk worm originated in China. As a regular branch of human industry it seems to have come into vogue four thousand five hundred and fifteen years ago, through the encouragement of the Empress Si-ling-Chi, to whom is attributed the invention of silk stuffs. The country was enriched through the development of this industry, and from that day to this the memory of Si-ling-Chi has been held in the greatest reverence. She has been placed among the deities of the land, and her name changed to that of Sein-Thsan, which signifies "the first who raised silk worm." The secret of silk worm culture was finally stolen from China, and ultimately spread all over the globe; for twenty years, however, the Chinese kept the secret faithfully; death was the penalty which any one incurred who attempted to impart a knowledge of it to any outside nation, and their frontiers were guarded closely to prevent the secret from being carried abroad.

Timidity of Great Men.

It is frequently the case that persons accustomed to appear before the public are notably modest, not to say timid, in private. Examples are often seen among clergymen, and particularly among actors. Many of the most eloquent of pulpit orators—used to face, without shrinking, large congregations nearly every day—assume a very different bearing in a parlor to that which marks them in church; and some of the most distinguished theatrical performers are, away from the footlights, the most easily disconcerted of men. Thus the famous Matthews could very seldom be induced to exhibit his talent among his personal friends. He was nervous and shy, and his performances created no enthusiasm. Theodore Hook, an incorrigible wag and jester, had all imaginable assurance in playing those funny pranks upon people for which he was so celebrated; but on one occasion he was to take part in some amateur theatricals, and it was generally surprising to see so bold a gentleman, when he made his appearance, utterly paralyzed with fright and unable to utter a word or move a limb. A famous French author was afflicted with a morbid shyness which amounted almost to insanity. A word or a look disconcerted him, and of the ladies he stood in absolute terror. Byron, too, was shy, on first acquaintance, even to awkwardness. In fact, many people of genius and talent are so painfully backward in society that strangers are apt to mistake them for dolts or wall flowers.

A Paper Age.

If this has not been a golden age, or an iron age, one might fairly call it a paper age. Surely we are finding as many uses for paper as the people of the Orient do for their palm tree, which is said to supply three hundred and fifty of their wants. When we consider that shoddy, now so largely used, is only a kind of paper made of woolen rags instead of cotton, we can see the many purposes to which it may yet be applied. A friend who owned large paper roofing factories, showed me one day samples of what I took to be very handsome silk of heavy quality, and of rich dark colors. They were only samples of paper made to imitate dotted silk, and were intended for milliner's uses. I have used the roofing paper on a half floor, and when painted it is an excellent substitute for oil-cloth, and not so cold to the feet. I have seen a large house built with only this paper for its sides and roof, and it was said to stand the weather well, and to be very comfortable.

A paper carpeting printed in small, neat patterns, is considerably used on office floors, as it wears well and is quite inexpensive. We are all familiar with paper flour bags, tied with paper twine, paper toys of all sorts, from tops to whistles, and paper collars and cuffs have become more common than linen ones.

Some seer is predicting a time when people shall go clad from head to foot in paper suits, which will cost less than the washing of a cloth one. Surely we are coming on toward that day when we hear of paper vest for summer of the most approved Marseilles stamp, and when we wear on our feet paper sole leather, which we never suspect until the shoes are about worn out. Summer wardrobes, when that good time dawns, will be very inexpensive affairs, and will not require a pocket full of paper greenbacks to purchase, as at the present.

An Odd Trade.

There are many curious trades carried on in the highways and byways of this world, which would quite surprise us were we to become acquainted with them.

They have a curious class of single women in Chinese society who ply the business of gossip mongers. They gather, with the assiduity of an old bone collector, all the stray bits of neighborhood news, all the choice little scandals afloat, which they deck up in a becoming manner, and then retail them out in ears polite at about the rate of fifty cents an hour. They go about in a quiet way, and when they reach the home of a wealthy customer they beat a little drum to announce themselves. Forthwith, there is a flutter among the housed-up Celestial beauties, who have none of the reliefs of our modern society, as shopping excursions, morning calls, at which they can hear and tell their own gossip, or even public assemblies. So no wonder these talking dames are gladly welcomed, and all are in haste to have them open their budget of news, and begin their delightful stories.

Like all true gossips, they are also very useful to their patrons at times, in matters of courtship, rivalry, and the like, and receive many beautiful gifts from those whom they serve. They generally make themselves so agreeable that their patrons are warmly attached to them, and they have a good provision laid up for their old age.

It may be a slander on the sex, but it is said they never retire from business, unless compelled by actual infirmity, their trade is so congenial to their feminine tastes. We know a good many women out of China who follow the trade with a similar assiduity, but I cannot say that any one of them ever came to much power or profit by the business.

Concerning Sulphur.

In 1688 there was a violent eruption from Mount Etna, in Sicily, which was attended with an earthquake, whereby 60,000 persons were destroyed. The sulphur which is now sold in the markets of the world is said to be largely derived from veins produced on that memorable occasion. The sulphur is ejected from the volcanoes at the time of their activity, and fills up vacant spaces in the lava or frothy pumice-stone. When this is quarried or mined, and dug out, it forms the brimstone of commerce. When this brimstone is melted and cast into sticks, it produces the roll sulphur of the shops; and when the brimstone is boiled, and its vapor is allowed to escape into an airtight chamber, the variety called flowers of sulphur is the result. Sulphur in its natural state is found only in volcanic regions; but in combination there is scarcely any substance so universally diffused over the world. It is found not only united with all kinds of metals on the face of the earth, but also in plants and animals, and is of so much importance to these that they cannot exist without it. The exquisite perfume of wall-flowers is a peculiar compound of sulphur. If a silver spoon be left in an egg, it soon becomes black; that effect is caused by the sulphur of the egg uniting with the metal. A compound of sulphur is always present in the air we breathe; and although small in proportion to its other constituents, yet the air is never free from it.

Commercially speaking, sulphur rules the destiny of man both in the arts of peace and in the appliances of war. It is the key which opens the door to the most important chemical manufactures. From it we make sulphuric acid, or oil of vitriol, which has well been called "the king of acids." By its aid we are enabled to produce so many substances that the bare mention of them would fill the whole of this paper. Bleaching, dyeing, soda-making, metal-refining, electro-plating, and electro-telegraphing are primarily indebted to this acid. Many of the most valuable medicines, such as ether, calomel, etc., could not be made without it. Sulphur being the chief ingredient of gunpowder, all the applications of that explosive in war and peace are dependent upon it. A people that does not possess lucifer matches stands beyond the pale of civilization, yet matches cannot be made without sulphur; not because matches are dipped into melted brimstone before they are tipped with the phosphoric composition which ignites them, but because this very material could not be made without the indirect use of sulphur. England alone consumes more than 60,000 tons of sulphur annually, which is all brought from the volcanic regions of Sicily.

Jewish Life in the Time of Our Lord.

Altogether, it seems eighteen garments were supposed to complete an elegant toilette. The material, the color and the cut, distinguished the wearer. While the poor used the upper garment for a covering at night, the fashionable wore the finest linen white, embroidered or even purple garments, with curiously wrought silk girdles. It was around this upper garment that "the borders" were worn which the Pharisees "enlarged"—(Matt. xxiii:5.) Of these we may speak hereafter. Meantime we continue our description. The nine garment went down to the heels. The head-dress consisted of a pointed cap, or kind of turban, curiously wound, of more or less exquisite material, the ends often hanging gracefully behind. Gloves were generally used only for protection. As for ladies, besides the difference in dress, the early charge of Isaiah (iii:16, 24,) against the daughters of Jerusalem, might have been repeated with tenfold emphasis in the New Testament times. We read of three kinds of vails. The Arabian hung down from the head, leaving the wearer free to see all around; the vail-dress was a kind of mantilla, thrown gracefully about the whole person, and covering the head; while the Egyptian resembled the vail of the modern Orientals, covering breast, neck, chin and face, and leaving only the eyes free. The girdle, which was fastened lower than by men, was often of very costly fabric, and studded with precious stones.

Sandals consisted merely of soles strapped to the feet; but ladies wore also costly slippers, sometimes embroidered or adorned with gems, and so arranged that the pressure of the foot emitted a delicate perfume.

It is well known that scents and perfumes were greatly in vogue, and often most expensive, (Matt. xxvi:7.) The latter were prepared of oil and home or foreign perfume, the dearest being kept in costly alabaster boxes. The trade of perfumes was, however, looked down upon not only among the Jews, but even among heathen nations. But in general society anointing was combined with washing as tending to comfort and refreshment. The hair, the beard, the forehead, and the face, even garlands worn at feasts, were anointed. But luxury went much further than that. Some ladies used cosmetics, painting their cheeks and blackening their eyebrows with a mixture of antimony, zinc and oil. The hair, which was considered a chief point of beauty, was the object of special care. Young people wore it long; but in men this would have been regarded as a token of effeminacy. The beard was carefully trimmed, anointed and perfumed.

Old Time Streets.

In the beginning of the twelfth century, men began to think that pestilences were not visitations of Providence, but the result of uncleanness and filth. Consequently upon that belief, the ill-smelling streets of Paris were paved. At once dysenteries and spotted fever diminished; a sanitary condition approaching that of the Moorish cities of Spain, which had been paved for centuries, was attained. In that now beautiful metropolis it was forbidden to keep swine, an ordinance resented by the monks of the Abbey of St. Anthony, who demanded that the pigs of that saint should go where they chose; the government was obliged to compromise the matter by requiring that bells should be fastened to the animal's necks. King Philip, the son of Louis the Fat, had been killed by his horse stumbling over a sow. Prohibitions were published against throwing slops out of the windows. Paving was followed by attempts at the construction of drains and sewers. Then followed the lighting of the public thoroughfares. At first, houses facing the streets were compelled to have candles or lamps in their windows; then the system of having public lamps was tried, but this was not brought to perfection until the present century, when lighting by gas was invented. Contemporaneously with public lamps were improved organizations for night-watchmen and police, and thus travelling by night lost its last remaining terrors.

It is stated that of the 250,000,000 tons of coal annually dug from the bowels of the earth, Great Britain produces one-half, Germany and the United States one-sixth each.

VARIOUS METHODS
OF
TERRAPIN AND TURTLE HUNTING.

In the broad but clear waters of the Niagara River, several miles above the Falls, there are two or three large bays, formed by the winding course of this noble stream, where the current becomes comparatively slow, so that the terrapins (sometimes erroneously called mud-turtles) seem to meet with little or no difficulty in stem-

sun while they take a nap; for they are very fond of basking in the sun on the margins, and on stumps and stones, whence they can readily plunge into the water if disturbed

"What would you say,
If I should tell,
Of a fellow small,
In a house of shell?
Would you believe it,
If I should declare,
He carries his house
With him everywhere?"



SHOOTING TORTOISE ON THE NIAGARA RIVER.

ming it; for if the sportsman will take the trouble of concealing himself on the adjacent bank, where he may occasionally meet with screening bushes or underwood; or be anchored off in the stream, at some distance, in a small canoe, that looks more like a floating log of timber than like a navigable craft, he will have opportunities of seeing these creatures rowing themselves from one part of the bay to another, for the purpose of finding some suitable stone, or stump, or prostrate tree, upon which to crawl, for the purpose of sunning themselves in the

He travels about
Where his mind is led,
And never needs
To go home to bed.
Wherever he stops
He fares very well,
For he always keeps
His own hotel.
His living is cheap,
For he pays no rent,
Therefore he ought
To be very content."

The terrapin is extensively used as food. The sea

son for hunting them begins on the first of October, and continues until the first or middle of March. They are frequently brought to market before and after this period; but by good judges are then considered unfit for the table. There are several varieties of the fresh water species of their family, *emydoidæ*. They have a depressed head, and the neck can be wholly retracted within the shell; eyes large, and the beak somewhat like a bird of prey; they are good swimmers, and out of the water move with more quickness than the land tortoises; their food consists of small reptiles, fish, and other aquatic animals, though in captivity they eat vegetables readily.

The three common varieties of salt water terrapin known to our dealers are the true "diamond-backs," the "little bulls" and the "red fenders." The diamond-backs are considered marketable when they become about six inches long, and they are rarely found more than eight inches in length. They are generally about six inches long when three years old. This season, terrapin of this size bring fifteen dollars per dozen. A large size, eight inches long, are considered very choice, and easily command twenty dollars per dozen. When less than six inches long their marketable price decreases very materially, and they bring only from eight to ten dollars per dozen. They are sometimes caught by fishermen in their nets. But this does not often occur at this season of the year, as terrapin become torpid on the approach of cold weather, and burrow in the mud at the bottom of the small streams along Chesapeake Bay. When the season for hunting them arrives, the hunters—who are generally colored men—go up these shallow streams in boats, when the tide is out, in search of their game. They do not shoot the game, as do the hunters on the Niagara River; but one man sits in the stern of the boat and paddles slowly along; another takes his station in the bow, armed with an iron-pointed pole, with which he probes the mud. These men become so expert that as soon as the back of a terrapin is struck in the mud they know the fact by the peculiar sound, and, dropping the pole, they take a pair of short oyster-tongs, with which the animal is quickly dug out of the mud and lifted into the boat. These men make very good wages during the early part of the season, as two men will sometimes capture twenty terrapin a day. A prominent dealer estimates that from eight hundred to twelve hundred persons are engaged in terrapin hunting during the early part of the season. The hunters receive about sixty per cent. less than the market value of the terrapin, which pass through three or four hands before they reach the large cities, where they are sold to consumers. During the season about three hundred thousand terrapin are brought to Baltimore, and are shipped to New York, Boston, Philadelphia, Pittsburg, Chicago, St. Louis, Cincinnati and other points. These will average in value at least one dollar; so that the trade must aggregate more than three hundred thousand dollars a year at the lowest calculation.

The American species of tortoise inhabits the whole continent east of the Rocky Mountains, and as far north as the great lakes and the upper St. Lawrence; the foreign species are found in the warm regions of southeastern Asia, and Africa. The oldest geological deposit in which any of this family has been discovered is the green sand of New Jersey. They vary greatly in size, from a few inches to twelve or more feet in circumference.

Living quite contentedly in the world-renowned Zoological Gardens of London, are two large land tortoises, male and female. The two individuals differ from each other considerably, not only in size, but in the form of the shell. The male weighs nearly nine hundred pounds; but the female is much smaller; her shell is smooth and evenly colored, while that of the male is rough, and varies in color. They feed on vegetables of all kinds, of which they consume daily a large quantity; they seem to prefer cabbage and vegetable marrow; but eat grass freely. A constant supply of water to drink is essential; without it they would perish in a short time; They are fond of basking in the sunshine, but dislike a long exposure to its direct rays at midday. Their walk is slow and clumsy, but is not impeded by the weight of as many people as can possibly find room

on the back of their shell. These tortoises never bite, and the male is so tame as to take food out of the hand. He is fond of being stroked and rubbed about the head and neck, which he protrudes out of the shell to their full length. He shows great affection for the female, and this was especially apparent when he was released from two months' confinement in his cage; he seemed stiff, without any inclination to move, until the female was placed before him, when he at once stretched out his head and followed her about in their enclosure. Some time before sunset they go to rest, one with the fore part of the shell resting against that of the other. The male has a loud voice, compared by the keeper to the roaring of a bull.

Lyman in his "Recollections of Agassiz," which indicates with what enthusiasm Agassiz entered into the study and investigation of Natural History, says:—"My acquaintance with Agassiz began in the Autumn of 1848, and during the next two years he was frequently at my house in Waltham, and made collections with me in the country around the village. One day, as we were walking together in a field, we came upon a fragment of bone, left apparently by some dog from a neighboring house. I was passing by it without attention, but Agassiz picked it up, and saw two spiders clinging to its under side. 'There!' said he, as he transferred the spiders to a bottle of alcohol, 'that shows us that no object is so trivial as not to repay you for looking at it. Who would have thought to get two genera of spiders from an old piece of mutton bone?'"

"We returned one day, from our ramble, with several frogs and snakes tied up in a handkerchief with a couple of spotted turtles. Mrs. Hill asked him if he thought the frogs liked their company. 'No!' he said, 'he was afraid they did not find it very agreeable.' He took the turtles out, and transferred them to a waterpail, and set them in the kitchen. Our servant girl—newly arrived from the north of Ireland, and who had been greatly delighted, a few days before, to hear Agassiz describe, in a public lecture, the Irish mollusks which she had herself gathered in her childhood—looked at these novel monsters with an 'admiration not unmingled with awe.' While we were at dinner she came in, with breathless horror, and whispered to Mrs. Hill that one of those black things was creeping into the fire. Agassiz overheard, excused himself, and ran to save his tortoise. I followed just in time to see him push aside the reflector from before the range, and dive in after the reptile, which was not injured. He said he understood the girl's terror; he had never seen a living tortoise himself until his arrival in America."

"Those were especially the days of turtles, when, in 1850, the second volume of 'Contributions to the Natural History of the United States' was in preparation. From the four corners of the earth these animals were there gathered together, and the iterated names—*Emys*, *Testudo*, and *Chelonias*—drove all the rest of Latin nomenclature out of our heads. They were everywhere, some preserved in jars, and some dried on the shelves; then the living ones in all directions. A large Galapagos tortoise dwelt in the front entry; many little terrapins hid under the stair, and soft-shell turtles inhabited tubs. The Professor's own house was not free from them, and his little garden was, at times, quite swarmed. The excitement culminated when there arrived, one day, a strong box with bars, suitable for a wild beast, and containing two huge Mississippi snappers, perhaps the most ferocious, and, for their size, the strongest of reptiles. The Professor traced the ferocity back at once and showed that the very embryo of the snapper, before it is ready for hatching, would fiercely bite a bit of stick."

When this species seize their food, or defend themselves, they dart out their head and long neck with the rapidity of an arrow. They bite sharply with their trenchant beak, and do not let go till the piece they have seized is taken out; the fishermen, therefore, cut off their heads generally as soon as they are caught.

This is the way catching turtles is described:—"You spy him from afar off floating on the undulating surface of the water. Slowly, cautiously, your boatman rows the skiff to the turtle; the least clumsy splash of an oar would disturb his siesta. At last you get behind him, and inch by inch you approach him. Then you stoop well over the bow, and turn your turtle. Ahem! Turn him! It seems easy enough to say 'turn him,' but how do you do it? You bend down, leaning far over the bow of the boat, make both hands meet under his belly in the water, and you lift Mr. Turtle clean out of the sea and tumble him backwards into your boat. It is surprising how light a turtle is in the water and what a dead weight he is when out of his element. No matter if he does struggle a little and dash his flippers at you, the only thing really to be afraid of is his beak, and the barnacles which almost always grow on his sides and cut like knives into the arms and wrists when you hold a two hundred pound turtle in your embrace."

A curious method of capturing sea turtles when asleep in the water is practiced in some parts of the East, by means of the

sucking fish, or remora, a well-known fish, about a foot long, having a sucker on the top of the head, by which it attaches itself to bodies in the water. A number of these fish are kept alive in cages in the water, and when a sleeping turtle is seen at a distance, a string of suitable length is tied about the narrow part of the tail of one of the fish, which is pointed in the direction of the floating animal. The fish instinctively makes for the turtle and attaches itself, and the string being then carefully drawn in, both animals are hauled within reach and secured.

A South American traveler tells how the Conibos capture turtles, which are an important article of diet with them. In the night the turtles come out of the river in large numbers to lay their eggs.

"Ponderous, clumsy creatures, rolled up
From the water?"

The Conibos, squatting, or kneeling under their leafy sheds, and keeping profound silence, await the moment for action. The turtles, who separate themselves in detachments on leaving the water, dig rapidly with their fore feet a trench often two hundred yards long, and always four feet broad and two deep. They apply themselves to the work with such zeal that the sand flies about them and envelopes them as a fog. As soon as they are satisfied that their trench is large enough they deposit in it their soft-shelled eggs to the number of from forty to seventy, and with their hind feet quickly fill up the trench. In this contest of paddling feet more than one turtle, tumbled over by his companions, rolls into the trench and is buried alive. Half an hour is enough for the accomplishment of this task. The turtles then make a disorderly rush for the river. Now the moment has arrived for which the Conibos have anxiously waited. At a given signal the whole band suddenly rise from their lurking-places and dash off in pursuit of the amphibia, not to cut off their retreat—for they would themselves be trampled under foot by the resistless squadrons—but to rush upon their flanks, seize them by their tails, and throw them over on their backs. Before the turtles have disappeared, a thousand prisoners often remain in the hands of the assailants.

Oil Cloth.

The custom of covering floors, halls, and passages is very general. Where warmth and comfort are desired, carpets are used. Where something more durable and less costly is demanded, a covering of oil or floor cloth has been invented. This cloth or canvas is a very strong fabric, made of flax and hemp, painted on both sides, the under side being plain, the upper side ornamented with patterns or designs of two or more colors. The cloth used for this purpose should be without seam, so that when pieces of great width are required, two men are employed at the loom, one on each side, for throwing the shuttle back and forth. This kind of cloth being woven for this purpose alone, its manufacture forms a distinct branch of business. Pieces are made from eighteen to twenty-four feet wide, and the length often exceeds one hundred yards.

When the canvas is received at the manufactory, the bales, containing one hundred or more yards, and weighing nearly six hundred pounds, are opened and cut in pieces of sixty or one hundred feet, as may be required. These pieces are then taken to the "frame room," which consists of a number of strong wooden frames, standing upright, a few feet from each other. The space between the frames is occupied by a scaffold of four tiers, which may be reached by means of a ladder at one end of each frame. The edges and ends of the canvas are fastened to the frame, and by means of screws the beams of the frame are moved so as to tighten and stretch it to its utmost tension. In this position every part of the cloth can be reached from the several platforms. The first operation, preparatory to painting, is covering the back of the canvas with a weak solution of size, applied with a brush; and, while yet damp, the canvas is thoroughly rubbed with pumice-stone. By this means the irregularities of the surface are removed, and the size penetrates the interstices of the cloth, so preventing the paint, which is afterward applied, from penetrating too far, which would render the oil cloth hard and brittle. This priming and scouring are carried on from the top downward.

When the surface is dry, a coat of paint, made of linseed oil and some cheap coloring matter, is applied. This paint is very thick and is thrown on to the canvas in dabs with a short brush; it is then spread with a long and very elastic steel trowel. The paint is thus thoroughly worked into the web of the cloth, filling up all inequalities, and rendering the surface smooth and level. The "trowel-color," as it is called, is allowed to dry ten

days or longer, according to the weather, after which a second coat is smoothly laid on with the trowel, which completes the work for the under side of the canvas. After the first coat of paint is applied to the under side, the same process is commenced on the face side of the cloth; the size is applied, then rubbed in with pumice-stone; the first trowel color is then on, which, when dry, is also rubbed down with pumice-stone; two more coats are applied with a trowel, with a pumice-stone rubbing after each. Finally, a fourth coating of paint is applied with the brush, which is the ground color for the designs which are to be printed on it. The floor cloth is thus completed, the various occupations occupying from two to three months, when it is ready to be removed from the frames and transferred to the printing rooms.

The printing of the cloth is done on a flat table, over which it is drawn as fast as the designs are impressed. This is done with wooden blocks, not unlike those used in the old method of calico printing. As the patterns generally consist of several colors, there are as many blocks and as many separate printings as there are colors in the designs.

In preparing a set of blocks for printing oil cloths, an accurate colored sketch of the design is first made on stout paper. A blank sheet of paper is then placed under this, and by means of a sharp point, all that portion of the device including one color is marked on the under sheet in a series of dots, or holes. This being removed, another blank sheet is placed under the pattern, and all the figures of another color are pricked out in a similar manner. Thus the pattern is dissected on as many sheets of paper as there are colors to be printed. One of the pricked sheets is then fixed on the surface of a block, and a little powdered charcoal is then dusted over it from a muslin bag, so as to penetrate the hole. The dotted line thus made on the block serves to guide the pencil of the engraver when the paper is removed, and enables him to draw the portion of the pattern required for that block. The same plan is pursued with other blocks, which are then ready for the engraver, who cuts away the wood, and leaves the pattern in relief.

The blocks used for printing are generally about eighteen inches square, the engraved portion being made of some close-grained wood, such as the pear tree, and fastened to blocks of pine. These engraved blocks, in large establishments, constitute a very valuable portion of the stock. Before the designs are impressed on the cloth, it is made slightly rough by means of a steel scraper and a scrubbing brush, which prepare it to receive the colors more readily. Near the printing table is placed a number of flat cushions, on which the coloring matter is first placed with a brush. The printer presses the block on the cushion, which is charged with the color, and then applies it to the cloth, holding it firmly, at the same time striking it several blows with the handle of a heavy hammer. A second printer charges his block with a different color, and applies it in the same manner. He is followed by a third, and as many others as may be required to form the most variously-colored pattern. As fast as the cloth is printed it passes through an opening in the floor to the drying room, where it becomes hard and ready for use. Narrow pieces, for halls and stairs, are first cut the required width, and printed in the same manner, except that a space is left on each side for a border, which, requiring smaller blocks, is put on afterward. Sometimes drying oils are used to hasten the completion of the work; but this makes the cloth brittle, and of inferior quality.

There are various large manufactories of oil cloths in the United States, and the value of their production is about two millions and a half dollars yearly. A still cheaper floor covering is made of stout, strong paper, painted in colors, but has not yet attained an extent which enables it to be called a "great industry."

WILD OATS.—Of many a young man to-day whose life is irregular, if not flagrantly criminal, fond friends are saying: "Oh, he is only sowing his wild oats." Indeed, but not in the sense intended, not in the sense of burying them, but sowing them as the terrible seed of a more terrible harvest. It is false, parents, that such a youth has rich promise in it. It is false, young man, that you can transgress great moral laws and form vicious habits, and on arriving at manhood cast them off as easily as you can change your dress. The law is that you will reap in manhood what you sow in youth; that and not something else.

The Dead City of Is.

The story of Is may be found in one form or another in almost every book on Brittany, all having substantially the same accounts, resting principally upon the popular traditions.

Built in the vast basin which to-day forms the bay of Douenez, and separated from the sea by a dike, was the city of Is. In the dike were sluices, which from time to time were opened sufficiently to admit enough water for the cleaning of the drains and otherwise purifying the city. King Gradlon, a well beloved monarch, ruled here, and once a month presided in person at the opening of the sluices. The principal one was opened by a silver key, which the king always wore fastened about his neck.

It was a splendid court that King Gradlon presided over, and the magnificence of his capital was the wonder of the country. The royal palace was a place such as we dream of. In it marble, cedar and gold replaced the oak, granite and iron ordinarily used in building.

The honors of the king's court were done by his daughter Dahut, or Ahes, a princess shamefully known as the Honoria of Brittany. Like that other notoriously wicked woman—

She had for a crown the vices, and for pages the seven deadly sins.

This woman was accused of the most heinous crimes. It was her habit each night to entice young men whom she fancied to a chosen and secluded retreat, where, when they ceased to amuse her, they were dispatched by a masked menial, and their corpses borne away to the mountains. One is shown near Huelgoat, a gulf, at the bottom of which rushed the mountain stream, with sad, strange murmurings, and through which the winds are ever sighing—noises which the old wives interpret as cries from the souls of Dahut's lovers.

Complaints were made to Gradlon time and again, and he always promised to mete out speedy punishment to his daughter, but paternal indulgence was stronger in his heart than royal duty, and so Dahut went on in her wicked ways. His leniency was repaid by the basest ingratitude. His wicked child formed a plot against him, by which she meant to secure for herself the royal power. The silver key was the symbol of the king's authority, and Dahut soon possessed herself of it—stealing it from her father's neck while the man slept.

The king, when he found that the key was gone, was in the greatest consternation, and, under the ominous cloud of coming misfortune, retired to his palace, that the people, who regarded the key with superstitious reverence, might not know of his loss. At night he was awakened from a troubled slumber by the appearance of St. Guenole before him, who said:

"Rise up, O King, and hasten to leave the city with your faithful servant, for Dahut has opened the sluices by means of the silver key, and the unbridled sea is in the city."

It was true. Dahut, going to meet one of her lovers, who was also a conspirator with her against the old king, had by mistake opened the gate of the sea instead of the gate of the city. The first thought of the king, on hearing this dreadful intelligence, was the preservation of his daughter. He sought her out, took her behind him on his fleetest horse, and fled away from the encroaching wall of sea as fast as spur could drive. The sea followed him with fearful rapidity, but Dahut's cries of fright were louder in his ears than the noise of the waves; still not so loud as a supernatural voice beside him, which said:

"Gradlon, if you would not perish yourself, rid yourself of the demon that rides behind you."

Dahut also heard the voice, and became almost frantic with terror; she clung convulsively to her father, but he, recognizing in the voice a warning from heaven, shook her off into the wave that followed him. Then the king rode on safely to Quimper, and fixed there his court, making that city the capital of ancient Cornouailles.

Thus ends the story of Dahut and of the city of Is. The spirit of the wicked princess is supposed to inhabit still the city that she sacrificed.

There may or there may not be truth in the story; there certainly is poetry and tragedy in it, and this much certainly admits of no question—there is a drowned city, there was a king Gradlon, and there may have been a Dahut.

Queensland.

Queensland, a colony of Great Britain, and celebrated, like Australia, for her gold fields, has an area ten times as large as England and Wales, and is gaining in importance.

Among other productions found there is the bottle tree, which is thus described: "It is exactly the shape of a hock-bottle, and is from forty to fifty feet high, with no branches from the smooth stem, but crooked boughs and a crown of small foliage above. The natives tap this tree for the water that gushes out. The wood is soft and useless."

One drawback to Queensland is the hot weather. A traveller says:

"The thermometer shows 100 degrees for days together in the coolest part of the house, and then the inconvenience is great. Everything then that you touch seems to burn you, and placing your hat upon your head suggests a fiery band around the brow. Your butter turns to thin oil; water has a parboiling temperature; and you can only pout and gasp, and long for the sun to go down. In Queensland one does not often experience the 'hot dust winds,' known in Victoria, Southern Australia, and in New South Wales; yet, in such weather as I am telling about, if you go out to walk under your umbrella, you will feel the air throb and glow like the breath of a furnace.

"Go on to the verandah and look upon the dry and parched landscape, and everything in nature seems paralyzed and dead. Your home stands bare and shadowless—the vertical sun casts no outline of the trees nor shrubs.

"Over the brown earth the hawk soars with languid wing, and, underneath, skimming the field, the hillocks, and stones, is the sluggish reflection of himself.

"The sun settles at last, in a seeming mist of fire, without a cloud for background to his glory. Darkness comes rapidly, shutting out the twilight, and fierce insects, thirsting for blood, flock to attack you; but, drawing your mosquito curtains, you rest and dream pleasant dreams."

Hyenas.

The first hyena ever trained, or whose supposed fierce nature was ever overcome so as to submit to being handled by man, was one which was experimented on in 1854 by Charles White, in New York. He was five or six years old, full grown, and as full of vice as all of his grave-robbing fraternity are reported to be. The first time the daring trainer ventured into the cage, Mr. Hyena came at him, mouth wide open, tusks protruding, screaming like a wild horse.

It was evidently to be a sharp fight between the man and the brute. Mr. White, with a huge club in his hands, awaited the coming of the amiable hyena. As soon as the animal got near enough, Mr. White prostrated him with his club. This was repeated again and again, till at length he needed no more club, and from that time was as docile as any trained animal, and needed no more and no severer correction than does a young lion or leopard.

One large show in England had several hyenas, trained to do tricks; they were performed by a stalwart negro, who, among other feats, fastened an iron belt around his waist, upon which were a number of hooks, arranged like those we see in the butcher shops.

On these steel hooks were stuck pieces of raw meat, which the animals were permitted to take off with their teeth when they had done their tricks.

Their performances were similar to those of other animals, consisting of various leaps over the keeper's back, over banners, together with taking part in sundry posturings and groupings, of which the man is always the central figure.

The first, and I believe the only, rhinoceros ever trained, was broken in by a Yankee circus proprietor. He taught the unwieldy brute to run around the ring backward and forward, being always controlled by a long ring-rein, fastened to an iron ring in his nose.

This was all the sulky beast could be compelled to do; he would learn no trick, and was always dangerous. The nose is the most vulnerable part. A sharp blow on the nose with a whip will give a lion or a tiger exquisite pain, when a hit with a sledge-hammer between the two eyes he would not mind at all.

Machinery.

It may well be said that we are now living in an age of machinery. The amount of work that is being performed by machinery is wonderful to think about. It is revolutionizing the world, so to speak. Fully half the trades that were in all their glory when the writer of this article was a boy, giving employment to large numbers of people, have become either obsolete or the next thing to it.

In those good old times of half a century ago we molded our bricks by hand, made our nails by hand, made our ropes by hand, our cloth (most of it), our hats, our boots and shoes, and, in fact, almost everything else that we had occasion to use, but now the machines are doing it all, each one with its giant strength and iron sinews turning out, in many instances, more than the work of a hundred men, and doing it to a degree of perfection that is amazing to contemplate.

True, many of the old trades are still represented, but it is little more than in name. The cooper who fifty years ago went through with so many processes to produce a barrel, now buys the staves, heads and hoops already made by machinery, and has nothing to do but to drive them together. The blacksmith buys the nails and shoes all ready for the foot of the horse. The shoemaker, in many instances, sets up shop as a cobbler, but buys ready-made the boots and shoes that he offers for sale. The carpenter has little else to do than to put his materials together. Thousands of houses made by machinery are sent hundreds of miles by rail and set up all ready to be occupied in a few hours after reaching their destination. The gentleman hatter—what old person does not remember the gentleman hatter?—well, the gentleman hatter has entirely disappeared. The gentleman tailor has dropped his needle and gone to driving a machine. But why enumerate, for very few indeed have escaped the general turning over of things mechanical.

Even the farmer has the machines close after him. They are cutting his grass and grain to the ruin of the rare old "harvest times;" they are doing his threshing, they are dropping and covering his corn, and his wheat and his cotton; they are raking and pitching his hay; they are turning up and pulverizing his soil; they are planting, digging and assorting his potatoes; they are shearing his sheep, and so on to endless extent.

No one can say that great good to the country at large has not come of an employment of labor-saving machinery. It may have at times put the old tradesmen to some inconvenience, but that, of course, could not be helped. In many instances their own conduct, as manifested in combinations and strikes, hurried on the present condition of affairs. Capitalists knew that machines never organized strikes, and so they gave them all the encouragement that money could suggest, thus pushing them on to perfection.

Even at this day some people hesitate to introduce labor-saving machinery, especially on the farm. They ought not to hesitate. The system is now permanently established beyond the possibility of any other condition of affairs, and hence the person who hesitates to profit by it is simply standing in his own light. He *must* go with the current, and the faster he can go the better. Let us, therefore, employ all the labor-saving machinery that we can find use for and can make profitable.

True Nobility.

True nobility never fails to do its duty. The faithful discharge of duty is what creates it. False nobility never does its duty; this is what creates it. True nobility rests upon labor; false nobility is based upon idleness. One is substance, the other shadow; one is useful, the other detrimental. It is the star, ever modestly twinkling in the night, that is remembered when we ponder upon the beauties of the heavens; it is the meteor, which flashes indescribable beauty for an instant, and then goes out, that we soon forget. There is so much which mental and physical effort is capable of achieving and of leaving as an imperishable monument to human greatness and nobility, that a tinsel drone in this busy life, instead of being the ornament he thinks himself, appears like a dead tree in the midst of the green forest—like a weed in the flower bed. There is not one of us who cannot build himself a monument that will last when the column Vendome has crumbled and the glitter of titled aristocracy has faded. Go

forth upon the plains, where the music of civilization has never charmed, and kindle the fire upon the rude hearthstone and fill the air with incense of home; climb the rugged mountain's side, and crown its frowning sterility with the perfumes and graces of the valley; mount to its snowy peak, and mellow its perpetual Winter into unending Summer by the warmth of civilization and christianity; unbury the rubies which God has hidden in the bosom of the earth and planted in the rock; compel the ocean to yield up the pearls which for centuries it has held among its mysteries, and cause them to glow with their long hoarded beauty; study the varied magnificence of nature in the gem-studded skies, the hill, and the dell, and the cavern, and whatever you learn of creation and the Creator emblazon before the world; tune your heart-throbs and your thoughts to accord with the songs of the meadow stream and the trilling notes of the mountain spring, with the sweet sighing of the zephyr and the melodies of the lark, that your presence in the world may be like a soft sunbeam streaming from the great heart of God, and laden with the richness of His benignity and glory. Then, when ripe with years, you shall have gone to sleep among the roses of the churchyard, though no marble monument shall mark the spot, and heartlessness forbid a tear to drop upon your tomb, the angels will gild upon the humble head-stone, in letters of burning love, "Sacred to the memory of a noble man."

The Future of my Boys.

A great writer has said that "a child should be treated as a live tree, and helped to grow, not as dry dead timber, which is to be carved into this or that shape, and to have certain mouldings grooved upon it." This is true enough, but the difficulty for parents is to find out what is the *kind* of tree. It is said that when Dr. Watts was a child he was exceedingly fond of verse-making. His father, a stern and rather strait-laced schoolmaster, was very much annoyed at this, and did all in his power to keep the boy from indulging his taste. According to a well-known story, on one occasion he threatened to flog him severely the next time he found him making rhymes, upon which little Isaac fell upon his knees exclaiming—

"Oh, father! do some pity take,
And I will no more verses make."

Yet the son followed his bent, and has come to be regarded now as one of the first of English hymn-writers.

Numberless instances might be given of the same sort of thing—fathers and mothers failing utterly to discover their children's peculiar bent.

Kepler, the astronomer, was brought up as a waiter in a German public-house; Shakespeare is supposed to have been a wool-comber, or a scrivener's clerk; Ben Jonson was a mason, and worked at the building of Lincoln's Inn; Lord Clive, one of the greatest warriors and statesmen that England can boast, was a clerk; Inigo Jones, the architect, was a carpenter; Turner, the greatest of English landscape painters, was a barber; Hugh Miller, the geologist, was a bricklayer; Andrew Johnson, the late President of the United States, was a tailor; Captain Cook, the celebrated navigator, was apprenticed to a haberdasher; Bewick, the father of wood-engraving, was a coal-miner; Sir William Herschel, the astronomer, was educated especially for a musician; Michael Faraday, the philosopher, was apprenticed to a bookbinder; Jeremy Taylor, the poetical divine, was a barber, as was also Richard Arkwright, the inventor of the spinning-jenny; and Cowper, the poet, was brought up to the law, but hated the profession with a perfect hatred, and never, when he could help it, opened a book that bore upon it.

In the reading of these records, one cannot but wonder how much richer the world would have been if these men had found their vocation earlier. Of course each one in the cases cited possessed more or less of that genius which is inborn and cannot be created; but who shall say how much greater their influence would have been, had their start in life been in a more congenial sphere? The lesson for us should be to study the inclinations and tastes of our children, so that if we cannot make them men of genius, we can at any rate put them in a position where their talents will be best fostered and developed. But for this we shall require both sympathy and insight—sympathy to encourage the exhibition of the powers and insight to "discern the signs," and form an idea of their signification,



THANKSGIVING.

BY SARAH DOUDNEY.

I bless thee, gracious Father, meekly kneeling
Before Thee, while the daylight softly dies,
In this calm hour mine inmost soul revealing
To Thy most holy eyes.

I bless Thee for the long day's labor ended,
And for the strength that made my burdens light;
I praise Thee for the tender hands extended
Over my home to-night.

I bless Thee for the love that chastened kindly
My wilful spirit in the days of old,
When I, Thy wayward child, was choosing blindly
The dross before the gold!

I bless Thee for the voice of consolation
That speaks, in gentler tones, of pardoned sin,
And bids me strive, through sorrow and temptation,
My golden crown to win.

Oh, for His sake whose love all love excelleth,
Extend Thy care through all my nights and days;
And from the place wherein Thine honor dwelleth,
Hear and receive my praise.

Railway Speed.

It is stated that the highest railway speeds in the world are attained in England, and that the highest of all is reached on the Great Western railroad, the speed on the latter being given roundly as fifty miles an hour. Instances are given, however, of sixty-five and seventy miles an hour, and engineers think it would be possible to lay permanent way so well, and to maintain it in such excellent order, that trains might travel on it with perfect safety at one hundred miles an hour, indeed, miles upon miles of such track are now to be found on most the great main lines, but nowhere can one hundred consecutive miles of permanent way in perfection be found; and, as a chain is no stronger than its weakest link, so a few hundred yards of bad track would spoil, for the purpose of traveling at one hundred miles an hour, a whole line. The really important question is, what shall the engine be like, and is it possible to construct an engine at all, which, with a moderately heavy train, will attain and maintain a velocity of one hundred miles an hour, on a line with no grade heavier than say one in three hundred? After a thorough examination of the question in all its bearings, figures prove that it is absolutely impossible to obtain a speed of one hundred miles an hour on railways if the resistance is anything like one hundred and twenty pounds per ton.

Tent-Mates.

We asked a friend one day, who served as a surgeon in the army, how it happened that so many young men came back from the war worthless and dissipated, while others, of whom we would naturally expect but little good, returned very much improved. He replied, that it all depended on the "tent-mates." If a steady young man was quartered with a company of swearing, card-playing comrades, ten to one he would fall into their ways. On the contrary, good prayer-meeting men exerted an influence for good on those who were associated with them.

It is true the world over that the young, particularly, grow like the company they keep. If you know the society which a young man seeks voluntarily when the duties of the day are done, it will not be hard to forecast his future.

A young man was warmly recommended to a situation in an establishment in the city, with every probability of being accepted, and of rapidly rising in preferment. While he was waiting, in confident expectation, for a letter that should summon him to his responsible post, a member of the firm sent down a man to the town where the young man lived to see how his leisure time was passed. They found that in the evening he usually sauntered down to the billiard room, and that on Sunday he generally rode out with a few other young men for pleasure. That young men wondered greatly, as the months went by, why he did not hear from that firm.

It was the principle with another man, who had a great number of clerks in his employ, that when he saw a youth riding out on Sunday he dismissed him on Monday. Another thought it quite as bad a sign to see a lad puffing away at a cigar in the streets. "Straws show which way the wind blows," and these "signs" are more than straws.

Beaux of Former Times.

We much question whether the celebrated Beau Brummel, and even the equally celebrated Romeo Coates, are not absolutely mere Quakers in their dress, compared with some of the distinguished dressers of the former days. Sir Walter Raleigh wore a white satin pinked vest, close sleeved to the wrist; over the body a brown doublet, finely flowered and embroidered with pearl. In the feather of his hat a large ruby, and a pearl-drop at the bottom of the sprig, in place of a button; his trunk of breeches, with his stockings and ribbon garters, fringed at the end, all white; and buff shoes with white ribbon. On great court days his shoes were so gorgeously covered with precious stones as to have exceeded the value of £6,600, and he had a suit of armor of solid silver, with sword and belt blazing with diamonds, rubies and pearls.

King James' favorite, the Duke of Buckingham, could afford to have his diamonds tacked so loosely on, that when he chose to shake off a few on the ground, he obtained all the fame he desired from the pickers-up, for our duke never condescended to accept what he himself had dropped. His cloaks were trimmed with great diamond buttons, and he wore diamond hat bands, cockades and ear rings, yoked with great ropes and knots of pearl. He had twenty-seven suits of clothes made, the richest that embroidery, lace, silk, velvet, gold and gems could contribute, one of which was a white uncut velvet, set all over, both suit and cloak, with diamonds valued at fourscore thousand pounds besides a great feather stuck all over with diamonds, as were his sword, girdle, hat and spurs. When the difference in the value of money is considered, the sums thus ridiculously squandered in dress must have been prodigious.

Strange Sinking of Land.

A little village in the neighborhood of Draguignan, France, has lately been the scene of a remarkable subsidence, which has attracted the curious from all directions. An elliptical tract of ground, containing over ten thousand square feet, sank gradually one day, accompanied by loud noises, until it left an orifice of over one hundred feet in depth, with water at the bottom. Numerous trees and vines disappeared completely in the depth of the new lake. A similar depression on a smaller scale occurred in the same vicinity a century ago, and both the phenomena are attributed to the action of subterranean streams.

WHAT WE EAT, DRINK AND WEAR;

Where it Comes From.

A CHAPTER FROM BOTANICAL NATURE.

The seeker after truth and knowledge never tires in perusing the great book of Nature. The meadows, the orchards and the forests, loaded with myriad forms of vegetation, filling the balmy atmosphere with the sweet perfume of budding leaves and expanding blossoms, calls us forth to fields of pleasing study. Hundreds of different plants grow, bud and blossom yearly in every locality. To the inquiring mind every one is a little study in itself. We cannot analyze it, and behold its different parts with their uses and importance, without being filled with admiration by the wondrous harmony and beautiful workings of the creative power of God. "In wisdom He hath created them all," and "none are made in vain."

Every species of vegetation is peculiarly adapted to some particular climate and locality, and there it grows without cultivation, spontaneous and wild. There it originated, and from thence it has spread by means of various agencies to different countries, until the earth teems with a multitude of different forms in every section. Here are the fountains of life for man and beast; and here, in the fields and along the highways, is Nature's great laboratory, where specifics and remedies may be found for the cure of every disease that ever afflicted beings of flesh and blood. Did man only know the virtues and healing properties of roots and herbs, and the little plants that he vulgarly denominates weeds, growing in the old pastures and meadows, and along the margins of brooks and streams, where he has fought long and hard to exterminate them, botanical and medical science would undoubtedly undergo a mighty revolution; doctor's bills would be diminished, and he would often behold a treasure in what he had formerly looked upon as one of the most hated pests of the farm.

Perhaps many of our young readers do not realize to what an extent civilized humanity are dependent on the four quarters of the globe for the origin and preparation of what they eat and drink. America, however, is at this hour more prolific in food productions than any other country in the world.

Previous to the discovery of America the potatoe was not known. Now it forms one of the chief articles of food for all classes of the human race, almost as far as knowledge and civilization extends. It is found growing wild in some parts of Mexico and South America, particularly Chili, Peru and Uruguay. In its wild, uncultivated state it is small; scarcely exceeding in size the well-known American ground nut, and generally bitter and unpalatable to the taste. A species of sweet potatoe, tasting somewhat like a boiled chestnut, is said to grow wild in some of the valleys of New Mexico, which is dug and eaten in considerable quantities by the Navajoe Indians. The first account that we have of this useful vegetable was given to the world in 1533. As soon as its value as a food was discovered it spread rapidly, and a thorough cultivation produced astonishing results, both in quality and quantity. In 1870, the United States alone produced 114,775,000 bushels, valued at over \$82,000,000.

Unquestionably the principal food of man is derived from wheat. It is said to have originated in Siberia and Tartary. Large quantities have been raised in Europe and the countries of the East almost from time immemorial. It is often spoken of in those regions as corn. The Western States of the American Union now compose the great wheat producing region of the world, and all nations look upon its immense grain elevators as so many stupendous reservoirs of bread. The annual surplus which is exported to different countries to feed the multitude amounts to many millions of bushels. Winter wheat, which is the best and most extensively raised, should be sown on burnt fallow or rich ground the last week in August or the first week in September, and it would be well to soak the seed and roll in lime. The amber wheat is probably more extensively used than any other, though the white wheat is most generally thought to be superior, and brings a little more in the market. In 1870, there was raised in the United States 235,884,700 bushels, of which Illinois alone raised over 27,000,000.

Rye is thought to have originated in the same countries, and grows well in nearly all the regions where wheat is grown. It does not appear to exhaust the soil by excessive cropping as wheat does, and the straw is a valuable auxiliary to the hay and fodder crop. When ground with oats and corn it forms an excellent feed for cattle and horses. It should be sown about the same time as wheat, though good crops are often raised where it is put in the ground much later, and on inferior soil. Like wheat it is apt to be winter-killed, or destroyed by the frost, unless the ground be covered with snow. Its legal weight is fifty-six pounds; wheat, sixty.

Indian corn, or maize, as it is sometimes called, is indigenous only in America. The early discoverers found it in use among the Indians. Some of the golden grains were taken to Europe and planted; but it has never succeeded well outside of its native country. It grows best on a dry, warm soil, and if planted in proper season, that is about the 20th of May, hoed or cultivated twice, and kept free from weeds, it will yield a hundred bushels of ears to the acre. The stalks make an excellent fodder for cattle, and it is, therefore, one of the most valuable crops raised in our country. The lawful weight is fifty-six pounds per bushel.

The oat is found growing wild in Abyssinia in Africa, where no doubt it originated, and from whence it has spread through cultivation to nearly all parts of the world. Farmers have been imposed upon by designing advertisers and unreliable parties lauding and recommending some new kind, until they begin to feel a distrust in most any new sort that is offered. The Norway oat which sold for such enormous prices for seed a few years since, opened their eyes. No doubt many got rich by the enterprise, but the grain was hard, tough and worthless. Probably the best and most profitable kinds to raise are the old-fashioned white oat, the black oat, the barley oat, and the probesters. Fifty bushels to the acre is a good yield. They should be sown three bushels to the acre the last week in April or the first week in May, if the ground is dry, and they will scarcely ever be struck with the blight, or rust. The legal weight varies in the different States, generally from thirty to thirty-two pounds per bushel.

Rice is a native of Ethiopia, in Africa. It forms one of the most extensive food products of China, and is raised abundantly in many countries on both continents. Nowhere is it produced in better quality than in the swamps and marshes of Georgia and the Carolinas, where it can be overflowed if desired, for rice is an aquatic plant.

The sugar cane is found growing wild in China; and sugar was manufactured from it there long before it was ever thought of in the Western World. Cuttings are planted in rows at the commencement of the season, which are cultivated somewhat in the manner of Indian corn, which it resembles considerably, though it is often much larger, and when it has attained its growth it is cut and carried to the mill, where the juice is pressed out and manufactured into sugar. The next year a new shoot arises from the old stump, after which it becomes necessary to commence anew and plant out cuttings again, as the quality would speedily become inferior. The most of our molasses and sugars come from the West Indies and the Southern States; the difference in the color and quality is generally caused by the difference in refining. The brown sugars are commonly the sweetest.

The cotton plant was first known in the East Indies, and its product manufactured into a light, durable cloth several centuries before the commencement of the Christian era. The Southern States are one of the most cotton producing regions in the world. A field of cotton at the time of the bursting of the downy bolls or seed pods, is one of the most beautiful sights in the domain of Nature. An ocean of snowy bolls and long, soft, feathery bunches overspread the whole inclosure. It has long been the most valuable crop of the Southern States, and New Orleans and Mobile have been reckoned among the greatest cotton markets in Christendom. The celebrated cotton gin used on the Southern plantations, is one of the most remarkable inventions of the present age.

India-rubber, used so extensively in the manufacture of belting, boots, shoes, etc., is prepared from the gum of a tree found growing in the forests of South and Central America. The trees generally grow to the height of fifty or sixty feet, with rough barked branches at the top. The gum, or sap, is obtained from incisions made

through the bark of the trunk. The raw material is often known as caoutchouc.

Cinnamon is the bark of a species of laurel, which grows abundantly in the East Indian Peninsula and the Island of Ceylon. There thousands of persons are constantly employed in its cultivation and preparation, and hundreds of tons are annually shipped to all quarters of the world. It grows to the height of twenty or thirty feet, and when it blossoms, which is usually in the month of January, it presents a magnificent appearance. Beautiful white flowers, resembling those of the lilac in size and appearance, hang from long straight stems in pendant clusters, and the air is loaded with sweet perfume. When the plant is three or four years old numerous suckers spring up, and when these become from a half to three-quarters of an inch in diameter they are cut, scraped and peeled, and form the best cinnamon in the market.

Allspice is the dried unripe berry of a species of myrtle tree, found growing in great abundance in Jamaica, and also in many parts of both the East and West Indies. The tree often attains the height of twenty-five or thirty feet; and about the month of July, when its profusion of small white flowers bedeck its oval top of shining green, sending forth their rich aroma of commingled spices, it forms a pleasing sight. In the early part of September the berries are gathered and prepared for market. It commences bearing when three years old.

The nutmeg tree is a native of the East Indies. The tree grows straight and handsome, with a smooth brown bark. The leaves are of a deep green, and though somewhat larger, resemble in shape and appearance those of the laurel. The fruit or seed is inclosed by a soft fleshy covering of a bright crimson color, and this, when stripped off, dried and prepared for market, is known as mace.

Cloves are obtained from a tree found growing extensively in the East India islands. It grows to the height of eighteen or twenty feet, and generally consists of several branches which put forth near the ground. The bark is thin and smooth, and the dark evergreen foliage resembles that of the laurel. The ends of the branches are crowned with clusters of flowers with bluish petals veined with white. These dried flower buds are the cloves we find in the market.

Pepper, of which there are various varieties, is found growing in the East Indies and South America. The best black pepper is the seeds of the pepper tree of Java. Cayenne pepper grows abundantly in many parts of the tropical regions, and is known to botanists as the *Capsicum Anuum*. In South America there are places where acres of the Cayenne pepper plant grow wild and uncultivated.

Ginger is the ground root of a vegetable production of South-Eastern Asia, though it is now quite extensively cultivated in the West Indies. The tea plant is a native only of China and Japan. It is a smallish shrub, only a few feet in height, the cultivation of which forms the chief part of the agricultural labor of the Chinese. Coffee is said to have originated in Arabia, though it is now cultivated extensively in various countries. The West Indies yearly furnish an immense amount. The Mocha coffee, brought from Arabia, is the best in the market.

The apple is thought to have sprang from the crab tree found wild in various countries, and improved by grafting and cultivation. The pear is a native of Europe, where it was found by the ancient Greeks over 2,000 years ago. The peach grows wild in Persia, though in most places the trees are dwarfed and stunted, and the fruit, small, bitter and inferior. The cherry is a native of South-Eastern Europe and Western Asia, and the quince the same. Cucumbers and beans were first brought from the East Indies; horse radish from China; lettuce and cabbage from Holland; and tobacco from the West Indies.

Of medicinal plants there is a legion, and hundreds may be found growing wild in every locality. Senna is a native of Egypt and Northern Africa; Peruvian bark comes from South America; burdock originally came from Europe; archangel from France, liquorice from Southern Europe, juniper from Europe, catnip and poke from America, peppermint and yellow dock from Europe, rhubarb from Tartary and China, pink from the Southern States, etc. Many of the most valuable herbs and plants of the Old World have now become naturalized to this

country and grow plentifully among us. The judicious study of some good herbal or botany for an hour or two each day, would soon make us acquainted with the most of them. A new world of order and beauty would be opened to our mental vision and understanding. We could walk forth viewing the beauties of creation understandingly, and with unalloyed pleasure and profit.

Writing in Ceylon.

The most majestic and wonderful of the palm tribe is the *talipot* or *talipot*, the stem of which sometimes attains the height of one hundred feet, and each of its enormous fan-like leaves, when laid upon the ground, will form a semi-circle sixteen feet in diameter and cover an area of nearly two hundred superficial feet. The tree flowers but once, and then dies, and the natives firmly believe that the bursting of the sheath, which contains a magazine of seeds, is accompanied by a loud explosion. The beautiful dark-green, fan-like leaves, are converted by the Cingalese to many purposes of utility. Of them they form coverings for their houses and portable tents of a rude but effective character, and on occasions of ceremony each chief and head man is attended by a follower who holds above his head an elaborately ornamented fan formed from a single leaf of the talipot. They also form excellent umbrellas, remaining dry and light, and imbibing no rain. But the most interesting use to which they are applied is as substitutes for paper, both for books and ordinary purposes.

In the preparation of the *olas*, which is the term applied to them when so employed, the leaves are taken when still tender, and, after separating the central ribs, they are cut into strips and boiled in spring water. They are dried first in the shade and afterwards in the sun, then made into rolls and kept in store or sent to the market for sale.

Before, however, they are fit for writing on, they are subjected to a second process, called *maderna*. A smooth log of arech-palm is tied horizontally between two trees; each *ola* is then dampened, and a weight being attached to one end of it, it is drawn backward and forward by the other until the surface becomes perfectly smooth and polished; and during the process, as the moisture dries up, it is necessary to renew it till the effect is complete. The smoothing of a single *ola* will occupy from fifteen to twenty minutes.

The finest specimens in Ceylon are to be obtained at the Fansalar or Buddhist Mountains. They are known as *puskola*, and are prepared by the Samenerh priests (noviciates) and the students, under the superintendence of the priests.

The raw leaves, when dried without any preparation, are called *kavakolo*, and, like the leaves of the palmyra, are used only for ordinary purposes by the Cingalese; but in the Tamil districts, where palmyras are abundant and talipot palms are not, the leaves of the former are used for books as well as for letters.

The Cingalese write upon the talipot leaves with an iron style, held upright, and to make the letters appear, rub over the writing charcoal mixed with a fragrant oil, which also preserves the pages from insects.

The Execution of Sir Walter Raleigh.

The morning being cold, the sheriff wished him to warm himself at the fire. "No, good Mr. Sheriff," he said, "let us dispatch, for within this quarter of an hour my ague will come upon me, and if I be not dead before that, mine enemies will say I quake for fear." After having prayed, he rose up, saying, "Now I am going to God!" He felt the edge of the axe, observing to the sheriff, "'Tis a sharp medicine, but a sound cure for all diseases." He then laid his head upon the block, and was told to place himself so that his face should look to the east; he answered "It mattered little how the head lay, provided the heart was right." The executioner hesitated to strike, when Raleigh cried out, "What dost thou fear? strike, man!" His head was severed in two blows. Born 1552, died 1618.

"Even such is time, that takes on trust
Our youth, our joys, our all we have,
And pays us out with age and dust;
Who in the dark and silent grave,
When we have wandered all our ways,
Shuts up the story of our days.—Sir W. Raleigh.

Habits of Authors.

There is nothing of more interest to the brain workers generally, than the way in which others of their fraternity have done their work. The food they ate, the rooms in which they write, their general surroundings, have all an interest which hardly attaches to any other pursuit. Many young aspirants for literary favor have fancied that to imitate their habits would in some way inspire them with a like genius. The idea is a foolish one, for what is suited to one man's constitution and peculiarities, may have quite the contrary effect on another. Here, as every where else, good common sense is a very valuable guide. Don't make a fool of yourself in trying to imitate the eccentricities of some great man.

There is one point on which most of the brain workers agree. They usually like to begin their work in the morning. As Dr. Alexander used to say, he "liked to break the neck of the day's work as early as possible."

It is said that Alexander Dumas has a dish of soup set out for himself over night. Then he rises at what hour he pleases, heats and sups his soup, and then addresses himself to his work until noon. He is thus independent of servants and breakfast bells, and no doubt does up a wonderful amount of scribbling, such as it is, before twelve.

Buffon used to breakfast early on a crust of bread and two glasses of wine, when he, too, was ready for a day's study. He made amends at dinner time for his slim morning meal. No doubt a simple morning meal is best to secure the highest ability of the working powers, but generally a nourishing, appetizing breakfast will enable us to get the most work out of our brains of which they are capable. It is almost indispensable that we should stop precisely at the limit our appetite craves, or, if a little short of it, perhaps it is still better, so we are not absolutely hungry. But any excess is apt to stupify the powers and make the intellect dull and dreamy. The anacosta style of feeding is best suited to those who work only their muscles. Some great writer sits down every morning to a big bowl of oatmeal porridge and milk, and goes on the strength of that meal until dinner time. It is almost needless to add that he is a Scotchman. It is grand fare for any one who likes it, but it is hardly worth while for a person to follow his example when the food does not relish.

Some of our keenest writers feel that they can do nothing without a cup or two of rich coffee before they begin. Others, especially in England, sip their breakfast tea in great comfort, as the best preparatory for the day's work. There are exceptions, however. Horace Walpole says that he wrote "The Castle of Otranto" in eight nights, as his hours of writing were usually from ten till two at night, when he would not be disturbed by any visitants. While writing he kept the coffee-pot handy, and occasionally regaled himself with a hot cup.

This was much better than Tom Paine's style. When pressed by his printer for copy, he shut himself up with his decanter of brandy and glass. The first glass only set him a thinking. The second he used to brighten his intellect, and the third set him in full running order. He wrote rapidly and with precision, the thoughts coming faster than he could jot them down. Much that he has written bears marks of such inspiration.

Poor John Mitford was another "who tarried long at the wine." Possessed of brilliant powers, he burned them all out with this unhallowed fire. He wrote a nautical novel, quite popular in its day, while houseless and homeless. His publishers gave him a shilling a day while he wrote it. Two pennies' worth of bread and cheese and an onion were his food. The rest went for gin. At night he slept in a bed of grass and nettles. Thus he passed forty-three days, doing his own washing in a pond when he considered it necessary.

The World.

What is the world, even to those who love it, who are intoxicated with the pleasures, and who cannot live without it? The world is a perpetual servitude, where no one lives for himself alone, and where, if we strive to be happy, we must kiss its fetters and live its bondage. The world is a daily revolution of events, which create in succession, in the minds of its partisans, the most violent passions, bitter hatred, odious perplexities, devouring jealousy, and grievous chagrins.

The world! it is a place of malediction, where pleasures themselves carry with them their troubles and afflictions. In

the world there is nothing lasting—nor fortune the most affluent—nor friendship the most sincere—nor character the most exalted—nor favors the most enviable.

Men pass their lives in agitation, projects, and schemes; always ready to deceive, or trying to avoid deception; always eager and ready to profit by the retirement, disgrace, or death of their competitors; always occupied with their fears or their hopes; always discontented with the present and anxious about the future, never tranquil, doing everything for repose, removing still further from its vanity, ambition, vengeance, luxury and avarice; these are the virtues which the world knows and esteems.

In the world, integrity passes for simplicity; duplicity and dissimulation are meritorious. The most vile interest arms brother against brother, friend against friend, and breaks all the ties of blood and friendship; and it is the base motive which produces our hatred or attachments. The wants and misfortunes of a neighbor find only indifference and insensibility, while we can neglect him without loss, or cannot be recompensed for our assistance.

If we could look into two different parts of the world—if we could enter into the secret detail of anxieties and inquietudes—if we could pierce the outward appearance which offers to our eyes only joy, pleasure, pomp and magnificence, how different should we find it from what it appears! We should see it destitute of happiness—the father at variance with his child; the husband with his wife, and the antipathies, the jealousies, the murmurs, and the external dissensions of his family.

We should see friendship broken by suspicions, by caprices; union the most endearing dissolved by inconsistency; relations the most tender destroyed by hatred and perfidy; fortunes the most affluent producing more vexation than happiness; places the most honorable not giving satisfaction, but creating desire for higher advancement, each one complaining of his lot, and the most elevated not the most happy.

Tears.

Spurgeon calls them the diamonds of heaven. They have a strange and yet blessed mission. We know not all the purposes of God in the ordeal of sorrow to which we are liable. We learn some things of nature. Sunshine and calm are not the continued conditions of growth and beauty. Cloud and storm are a part of the plan. This life is a discipline. Tears have much to do with moral and spiritual growth and beauty. We now look only on the dark side of sorrow. It has a bright side. Joy is not all measured by smiles. Gayety is not true pleasure. If there were no minor tones in music, it would fail of its highest office. The heart is a wonderful realm. It does not all lie like a garden in the sunlight. It has profound depths like the dark caverns of earth. There are deep springs there. The murmur of those fountains is all the more musical for the solitude and the darkness. Tears even have a mission of gladness. They are the language of affection.

The weepers of earth are beautiful messengers of blessed and holy things. Tears withdraw us from the realm of the sensual and vain to the emotions of the pure and the heavenly. The prophets were weepers. Jesus wept. O, the wealth of his tears! He wept to make us glad. He went forth weeping that He might return bringing His sheaves with Him. What trophies those tears will bring. What everlasting songs shall come of His grief.

Tears of childhood, how beautiful. What would a tearless childhood be here! Tears of innocence! How we clasp little grief-torn hearts to our own! The tears of a mother, how remembered in after days. How many have been shed over us when we have never seen them flow. Manly tears. We have seen strong men weep—weep for sin, weep with regret. Let them flow: heaven loves them; they water the moral desert of this waste world.

The weeping time will end. Out of this land of tears the mourners will go. But the victory will remain. The joy of the morning will abide. Tears have no atoning merit, yet they are blessed. Treasured in memory they shall live. Because of them our love has been deeper, our cup of joy has been sweeter. Joyful tears! In heaven, no doubt, their memory will shine more beautiful than all earthly bliss. Be ours only tears of pity, or penitence, of love, not of remorse and despair.

Manufacture of Soda.

One of the most important branches of chemical industry is the manufacture of soda—sodium carbonate. Large quantities of this chemical are used by glass, soap, and cloth manufacturers, and in the household, for baking and washing purposes.

The sources from which it was formerly procured were the products of the combustion of sea-shore plants. It is now generally made from common salt, by the following processes:

A mixture of salt and sulphuric acid is first heated in large covered cast-iron pans, until chlorhydric acid is disengaged. This acid, being a valuable chemical, is absorbed by being passed through vertical stone towers, filled with lumps of coke, over which a small stream of water is kept trickling. The pasty mass is then pushed into an adjoining fire-brick chamber, which is strongly heated by flues connected with a furnace. From this furnace it emerges in the form of a white salt, which is known as sodium sulphate. From it "Glauber's Salts" are made by dissolving in water, which crystallizes it.

The sodium sulphate is mixed with chalk and coal, and heated in a furnace somewhat similar to that used by iron puddlers.

In case some of my readers have never seen a puddler's furnace, I will explain that it is constructed in such a manner that the article to be heated does not come in immediate contact with the heating agents, the flame being reflected, by means of a curved roof, on the substance to be heated.

It emerges from this furnace in a black powder, which is washed with warm water. The solution of water and black powder is then evaporated in pans in the furnace above described, which renders it white. In this state it is called *soda ash*. To obtain the *crystals of soda*, soda ash is dissolved in hot water and allowed to cool in large pans for five or six days, by which time the crystals of soda (sodium carbonate) will have formed.

The baking powder known as bi-carbonate of soda is made by exposing large crystals of soda to an atmosphere of carbonic acid gas, which converts the crystals into a powder much used for raising bread and cakes.

Life in Portuguese Country Towns.

There is nothing that would strike a traveler fresh from England, Germany, or France more than the great rarity of real country houses in Portugal. It is entirely against the genius of the people to live a country life. The Portuguese is too sociable to endure to be surrounded only by woods and fields and mountains. He has many of our northern tastes; he likes field sports in moderation; he rides, in his own style, better than any nation in Europe except ourselves; he has a sincere delight in country life and country scenery, but he cannot long support the utter solitude of the country. A Portuguese nobleman, if he be rich enough, lives in Lisbon or Oporto, and if he has a country-house will visit it for a month or two in the Autumn; even then he will often rather endure the misery of a sea-side lodging among a crowd than go inland. The larger of the country towns have streets full of gentlemen's houses; and here vegetate, from year to year, families who are just rich enough to live upon their incomes without working. To live, indeed, as the Portuguese do in such towns, need cost but little. A large house, with a plot of cabbages—a *kaleyard*,—behind it, with white washed walls, floors uncarpeted, a dozen wooden chairs, one or two deal tables, no fire-place, not even a stove, either in sitting-room or bed-room; no curtains to the windows, no covers to the tables; no pictures on the walls; no mirrors; no tables pleasantly strewn with books, magazines, newspapers and ladies' work; no such thing visible as a pot of cut flowers; no rare china, no clocks, no bronzes—none of the hundred trifles and curiosities with which, in our houses, we show our taste, or our want of it, but which either way give such a charm and individual character to our American homes. All these negatives describe the utterly dreary habitations of the middle-class Portuguese. For occupations the women do needle-work, gossip, go to mass daily and look out of window by the hour. Except the one short walk to church at 8 o'clock in the morning, a Portuguese lady hardly ever appears in the streets. As for the men, they lounge about among the shops, they smoke innumerable paper cigarettes,

they take a "siesta" in the heat of the day. If there is sunshine, they stand in groups at the street corner, with umbrellas over their heads; in winter they wear a shawl over their shoulders, folded and put on three-corner-wise, as a French or English woman's shawl—for this is a fashion in Portugal, and the Spaniards laugh a good deal at their neighbors on the score of their being a nation who invert the due order of things, and whose women wear cloaks and the men shawls. In these towns there is never any news, and if two men are seen in eager discussion of some matter of apparently immense importance, and if one happens to pass near enough to overhear the subject of conversation, be sure that one of them is plunged in despair or lauding with enthusiasm at a fall or rise of a half-penny in the price of a pound of tobacco. An American gentleman of my acquaintance told me that he never passed two Portuguese in conversation without hearing one of two words spoken, "*testao*" or "*rapariga*," finance or love. There are not even fashions for them to think about; young men and old men dress alike, but the younger ones wear exceedingly tight boots, and "when they take their walks abroad" it is obvious that they do so in considerable discomfort. The young men, however, have one occupation more important even than wearing tight boots, and which almost, in fact, goes with it—that of making the very mildest form of love known among men. The process, indeed, is carried on in so Platonic a manner, and with so much proper feeling, that I doubt if even the strictest English governess would find anything in it to object to. The young gentlemen pay their addresses by simply standing in front of the house occupied by the object of their affections, while the young person in question looks down approvingly from an upper window, and there the matter ends. They are not within speaking distance, and have to content themselves with expressive glances and dumb show; for it would be thought highly unbecoming for the young lady to allow a *bullet d'our* to flutter down into the street, while the laws of gravitation stand in the way of the upward flight of such a document—unweighted, at least, with a stone, and this, of course, might risk giving the young lady a black eye or breaking her father's window panes. So the lovers there remain, often for hours, feeling no doubt very happy, but looking unutterably foolish. These silent courtships sometimes continue for very long periods before the lover can ask the fatal question or the lady return the final answer.

Fogs.

Any one who has lived in the vicinity of a river or lake, has doubtless noticed on a summer morning a dense fog rising from its surface, marking distinctly its position. I used to look from my window and see the line of fog marking the course of a noble river for many miles. So from Mount Washington on an August morning, the tourist may trace out the Connecticut river by the fog, and also mark the position of a multitude of lakes and ponds, while the rest of the country is clear.

This fog is formed by the vapor of the water coming in contact with the cooler night-air, which quickly condenses it into fog. When the sun rises these grey mists

"Fold up their tents like the Arabs,
And silently steal away."

English fogs are familiar to all readers and travelers, and where they are added on to the smoke of bituminous coal, they make a city for the time akin to the land of Egypt during the prevalence of the ninth plague. Sometimes in the City of London, in the winter season, the gas is lighted at noon-day, and even then business almost comes to a stand-still. People jostle against one another in the street. Thousands of children lose their way, and even business men get lost and bewildered in the darkness, not half a block from their own dwellings. This fog results from the warm, moist air of the sea rising up and spreading itself over the cold land, which speedily condenses it.

The dry fog of the delightful Indian Summer days comes from a stagnation of the air, which does not clear away the smoke and dust which gather in it. The atmosphere, commonly so transparent, becomes like an unwashed window pane. A good, drenching rain, we all know, quickly clears up the haze.

Traditions Regarding the Difference in Color.

Inquisitiveness is a trait which characterizes, in a greater or less degree, every nation and every person. If a phenomenon differing from ordinary occurrences is observed, it becomes desirable to know the reason or cause of this difference, and, by the explanations given, we may distinguish the learned from the ignorant. The educated man will deduce a theory to explain any phenomenon from scientific facts. Failing in this, he will class it as something which cannot be explained. He does not believe in miracles, except such as result from a combination of natural laws.

The uncivilized and uneducated man, on the contrary, refers everything which he cannot understand directly to a divine origin. They reject theory and deduce from their superstitions a reason which satisfies them. A good example of this is seen in the traditions of some savage tribes of people regarding the difference in color of the various nations.

Along the western coast of Africa the natives believe that originally God, or, as they call Him, *Yankumpon*, created two men, both black and of equal intelligence and physical ability. To these He gave a choice between gold and a book, which they regarded as the symbol of intelligence. One chose the book and was immediately transferred to a cold, northern country, where, under the influence of the climate, his complexion gradually became whitened. The other, who chose the gold, remained in the same country and retained his black color. They also say that he lived long enough to discover the superiority of education over wealth.

They say that when the Great Spirit made the world he created also three men, but of what color is not known. He then conducted them to a small lake near by, into which he ordered them to plunge. One of them obeyed instantly, plunged in and came out white. The second hesitated an instant, and the water, before clear, had become slightly soiled when he entered it, in consequence of which his skin was dyed to its present hue. The third hesitated a still longer period, and the water, more disturbed than ever, dyed his skin black.

The Great Spirit now brought three packages before them. On account of his misfortune in having been the last to enter the lake, he gave the black man the first choice. He selected the largest and heaviest package. The red man chose the next in size, leaving the lighter for the white man. The Great Spirit then placed the white man in one country, the black man in another, and the red man in America, to each of whom he gave the exclusive right of living in his own country.

Upon examining their respective packages the black man found hoes, shovels, spades and other agricultural implements. The red man found bows, arrows, knives and fish-spears. In the white man's package were pens, paper, ink and books.

By this it was inferred that it was the wish of the Great Spirit that the black man should till the soil, that the white man should study and be wise, and that the red man should fish, hunt and make war.

There is no study which is more interesting than the study of the traditions and superstitions of uncivilized races of people. In the present case there is no resemblance between the two traditions, though it often happens that they are nearly identical.

An Ancient Document.

A correspondent who has been in Nablous, the modern name for Samaria, Palestine, says that a venerable journal is carefully preserved there, in which appears the following entry in the handwriting of a Samaritan high priest named Shabbott: "In the year from Adam, 4,281, in the nineteenth year of my pontificate, Jesus, the son of Mary, was crucified at Jerusalem." It is said that the old journals of the priests of the Samaritan synagogue are still in existence, dating back to fifty or sixty years before Christ was born. There is nothing improbable about the story. The priests of the Jews, like the monks of the middle ages, were the recorders of passing events, and the crucifixion of Jesus was a notable event, not only throughout Judea, but the whole Roman Empire.

A Trained Dog.

By careful training, wonderful intelligence may be developed in dogs, as the following anecdote will prove:

A fashionably dressed English gentleman was one day crossing one of the bridges over the Seine, at Paris, when he felt something knock against his legs, and looking down, he found that a small poodle dog had rubbed against him, and covered his boots with mud. He was, of course, much annoyed, and execrated the little brute pretty freely; but when he got to the other side of the bridge, he had the boots cleaned at a stand for the purpose, and thought no more about the matter. Some days after this occurrence, however, he had occasion again to cross the bridge, and the same little incident occurred. Thinking this somewhat odd, he resolved to watch where the little dog went to; and leaning against the side of the bridge, he followed with his eye the movements of his dirty little friend. He saw him rub against the feet of one gentleman after another, repeatedly rushing down to the bank of the river to roll himself in the mud, when he returned to the bridge, to transfer it to the boots of the passers-by, as before. Having watched his movements for some time, the gentleman noticed that on one occasion, instead of running down to the river, he went off to the proprietor of the stand for cleaning boots, at the other end of the bridge, who received him very cordially. The truth then for the first time dawned on him, that the little animal belonged to the man who cleaned the boots, and was trained by him to perform these mischievous deeds for the purpose of bringing in custom. So amused was the gentleman by the little creature's intelligence, that he quite forgave him for former injuries.

The Cyclamen.

This bulb is one of the most charming additions to every collection of plants, and no window garden should be without one or more varieties of it, for a few pots will make a constant supply of flowers from January until April or May.

The foliage is of a deep myrtle green, often prettily variegated with a lighter shade, and the flowers flutter like white or pink-winged and red-billed birds above their dark leaves. They are very abundant, and large bulbs have been known to produce over one hundred flowers each.

There are no other bulbous plants known which require so little care and give so large returns, and yearly they grow in favor with the flower-loving public.

There are several varieties and species of the cyclamen, and their flowers vary in color from the purest white to a rosy pink and purple. Some of the specimens are Autumn-flowering, but the greater part of them flower in the Winter and Spring.

The bulbs can be purchased either in a dry state or well started, and should be potted in a good compost of loam and well-rotted cow manure, with a little sand added to keep it friable. They require a warm room and even temperature, and a good supply of water when coming into flower. After the blossoms are past, and the leaves begin to turn yellow, give less water and let the bulbs have a season of rest. The pots can be plunged into a shady bed in the garden after the frost is past, and left without care until the season to house window plants is at hand. Then re-pot them in the above named compost, and water a little until they commence to throw out leaves; then give more water daily.

Small pots are best for small bulbs. A six-inch pot is large enough for the largest sized plant.

A Boiling Lake.

The discovery of a boiling lake in the Island of Dominica has excited much scientific interest, and investigations of the phenomenon are to be made by geologists. It appears that a company exploring the steep and forest covered mountains behind the town of Rosseau came upon this boiling lake, about 25,000 feet above the sea level, and two miles in circumference. On the wind clearing away for a moment the clouds of sulphurous steam with which the lake was covered, a mound of water was seen ten feet higher than the general level of the surface, caused by ebullition. The margin of the lake consists of beds of sulphur, and its overflowing found exit by a waterfall of great height.

Bathing in Famous Waters.

THE VALE OF GILGAL—A LAKE IN WHICH ONE CAN
NEITHER SINK NOR SWIM.

The Jordan is about the color of a new slate—a slate with the greenish-grey cloud still covering the surface. Its waters are opaque, thickened with clay, but delicious in temperature, and very refreshing to a pilgrim's palate. Is it a wonder that the river rushes like a mill race? From its source to its mouth, 136 miles in a bee line, it descends 3,000 feet. Its very name, "Yarden," in Hebrew signifies descent. It twists and turns until it has trebled the natural course from fountain to sea. It rises in its might and covers the plains, and drives back the flocks and herds that feed along its banks. You cannot bridge it; often you cannot ford it.

We got out of our clothes, and with the fresh air of the morning blowing upon us we passed into the cleansing flood. There was life in every drop of it. There can be no doubt about it; as a tonic the Jordan is unrivalled. While we waded cautiously near the shore, sitting down in the clay bottom to get as much of the water with as little of the current as possible, we were startled by a crashing of underbrush and a thunder of feet. Out of the bush emerged the Russian pilgrims in the wildest excitement. Each strove to be the first to plunge into the stream. Many of them were already half naked, and they speedily stripped, put on a long, white garment—a kind of shroud in which it is their wish to be buried—and having immersed themselves in the Jordan, they took off the shroud, rolled it carefully up, and having placed it in their luggage, returned quite naked to pass a half hour in the river.

Off for the Dead Sea! A rapid run in the fresh morning air, over the parched plains. Much of the way we followed the Jordan bank, and were sheltered somewhat by the foliage that fringes it. All this time, though we could have leaped into the stream with a hop, skip and a jump, we caught only occasional glimpses of the river as it rushed like a mill race between its steep clay walls, buried out of sight by its luxurious groves of willow. Until we were actually upon the shore of the sea, ploughing through pebbles and soft sand, we strained our eyes in vain toward the valley of death, eager to catch a glimpse of its bitter waters. Our trail wound through a dense growth of cane, oleanders, cactus and tamarisk. We trotted over the baked soil in Indian file, thinking of the wild boars, wolves, jackals, and leopards that prowl in the vale of Gilgal—the vale that was of old compared to "the Garden of the Lord." We saw nothing, not even a vulture, though no panorama of the Dead Sea is complete without a shadow of his wings darkening the canvas.

Out of the splendid distance, over the Salt Sea, the Sea of Asphalt, the Lake of Lot—call it by what name you will, for it bears all these—over the Eastern Sea of the old prophets, stole the withering breath of a furnace. Our horses sweltered in the heat. There was no possible shelter near the shore, for our camp trappings had already gone up into the wilderness. A dip into the gummy and elastic water was all we asked now, and in ten minutes we stood upon the sand half blinded with the heat and glare that nearly overcame us before we were safely out of it. The sea near the plain of the Jordan is shallow. Looking toward the south, the eye is lost in the profound mists that envelope it. Six and forty miles of sky blue crystal, thirteen hundred feet in depth, the topmost wave of which is thirteen hundred feet below the level of the Mediterranean. Neither fish, shells nor coral are found here. There are fish bones on the shore, the wrecks of the Jordan. The bitter oil—it is hardly worthy of the name of water—strangles everything to death, and then spits it out into the sun. Six million tons of sweet water fall into the Dead Sea daily; six million tons rise out of it, spiritualized, and float over it.

When we passed into the water we felt the weight of it before we had got knee deep. Soon we grew buoyant, and kept our balance with some difficulty. It was like trying to swim on corks that won't keep their places. A few steps further and over we went, heels up, and, to our surprise, heads up, likewise. The bath was certainly most refreshing, and the novelty of it not unlike a good-natured practical joke. When least suspicious, over we went on all-fours, bobbing like bladders, and

finding it extremely difficult to make much headway through the almost solid waters. The Dead Sea does for a change of medicine; it is as bitter as gall; but I would as soon think of swimming in a strong solution of feather beds. When we had once more got into our clothes and struck out for the wilderness, our skin burnt like fire, and we shed flakes of salt in such profusion you might have easily mistaken us for members of the Lot family.

What the Sea Tells Us.

We must, then, regard the salts of the sea as in the main dissolved from the solid crust during that remote period when the seas were young. The sea thus indicates to us the nature of those vast chemical processes through which the earth had to pass in the earlier stages of its history. If the present crust of the earth did not afford, as it does, the clearest evidence of a time when the earth's whole frame glowed with intense heat; if we could not, as we can, derive from the movements of the celestial bodies, as well as from the telescopic appearance of some among them, the most certain assurance that all the planets, nay, the whole of the solar system itself, was once in the state of glowing vapor; the ocean brine—the mighty residuum, left after the earth had passed through its baptism of liquid fire, would leave us in little doubt respecting the main features at least of the earth's past history. The seas could never have attained their present condition had not the earth which they encompassed when they were young, been then an orb of fire. Every wave that pours in upon the shore speaks to us of so remote a past that all ordinary time-measures fail us in the attempt to indicate the length of the vast intervals separating us from it. The saltiness of the ocean is no minor feature or mere detail of our globe's economy, but has a significance truly cosmical in its importance. Tremendous indeed must have been the activity of these primeval processes, fierce the heat of these primeval fires under whose action sixty thousand millions of millions of tons of salt were extracted from the earth's substance and added to its envelope.

An Enduring Monument.

The seaport town of Jaffa was a gay and worldly place some eighteen hundred years ago, and there were many fashionable frivolous women who spent their days in dressing and feasting, delighting in a butterfly popularity among their "set." They were wholly engrossed by their "wimples and mantles and changeable suits of apparel, their rings and their chains, and bracelets and mufflers," very much like women of like tastes at the present day. But ages ago their very names were forgotten. But there lived a humble neighbor of theirs whose name and works have been handed down perpetually to the world ever since, and shall be till the end of time. She built for herself a monument more lasting than the pyramids, though doubtless those who knew her unpretending work regarded her as the least likely of any woman in Jaffa to ever become a celebrity. It was only the labor of love for God's poor; a making of homely coats and garments for their comfort. Yet the Master took note of every act, and declared that "whosoever this gospel shall be preached in the whole world, there also shall this, that this woman hath done, be told for a memorial of her."

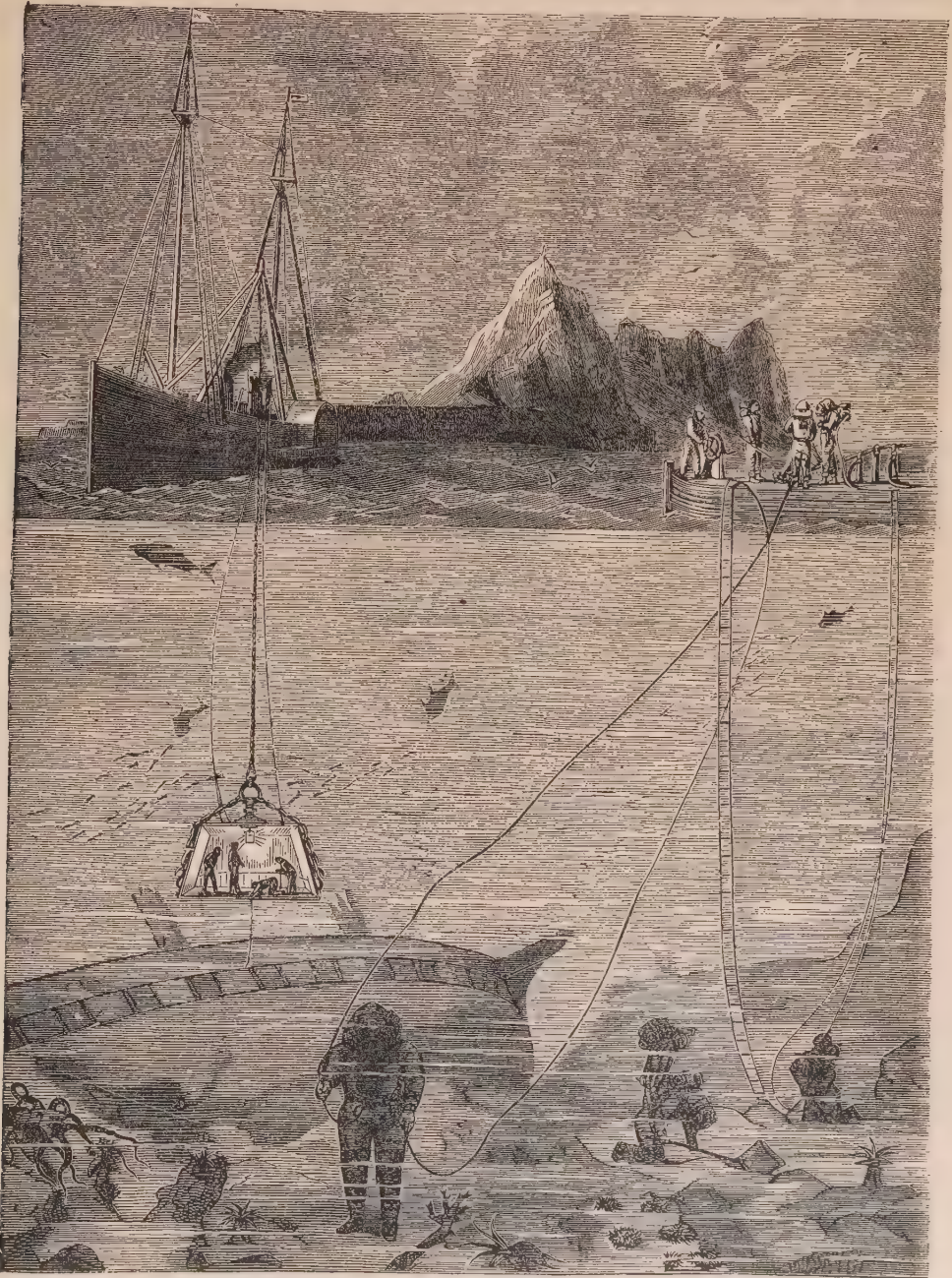
Dorcas' "good works and alms deeds" have been a standing lesson in charity to the Christian world ever since the Acts of the Apostles were penned. It is such simple deeds of love that are recorded on the page of that great history above, far before the grandest military victory. If we seek for enduring remembrance, we shall never find a surer means than in following the example of this humble woman. If we desire above "the honor that cometh from men," the favor also of our Heavenly Father, we can learn from her history how to win it.

A mouse is able to shift for itself when about a fortnight old; and by the time it is six weeks old frequently becomes a parent. Mice have generally between six and ten young ones at a litter, sometimes as many as twelve and even more, hence their fecundity is such that, not allowing for any mortality, a celebrated naturalist declares that the offspring of a single family of mice might number several millions in twelve months time.

DIVING BENEATH THE SEA,

Mr. W. Wood, of Herne Bay, followed the business of a diver for upwards of twenty-two years and

are situated the Copeland Islands. It so happened that a Whitstable man was a coastguardsman in this district. He heard a legend that a ship laden with a heavy cargo of silver had been wrecked off the Copeland Islands some half a century ago. He, therefore, communicated with some of his friends at



SEEKING LOST TREASURE.

then retired from active service. His stories of what he experienced down deep in the ocean depths are very interesting. He made his first start in life by an extraordinary, and, as it turned out, a very lucky piece of diving. If the reader will look at the map of Ireland, he will see that outside Belfast Lough, and a little to the south-west, opposite to Danaghadee,

Whitstable, who were divers. Accordingly Mr. Wood and four others put their diving-dresses on board a vessel, and sailed from Whitstable to Donaghadee.

The story they heard when they got to their destination was, that the wrecked vessel was in the slave trade, and that she had on board a large number of

slaves when she struck on the rocks, and also a considerable sum of money in the form of silver dollars. Nothing would have been known of the wreck having taken place, had not somebody discovered human legs projecting above the surface of the water. It appears that the people on board the ship had tried to escape, having first filled their shirtsleeves with dollars; but in getting up the rocks many of them had fallen back and met with an untimely end, as the weight of the dollars had kept their heads under water. No one had ever disturbed the wreck since the vessel went down, so Mr. Wood and his friends set to work to find out where she was.

They put on their diving-dresses, and for two or three days walked about to and fro at the bottom of the sea, in about forty feet of water, searching for the treasure. This they did by clearing away the weeds and turning over the stones with crowbars, and feeling for the dollars with their hands, as the water was too thick to see. The wood part of the wreck itself had entirely perished through the action of the sea water. At last, deeply imbedded in the sand, a few dollars were found, which gave them encouragement to continue seeking the sunken treasure. Success crowned their labors, and upwards of \$25,000 were recovered. They took down sieves and wooden corn shovels, and riddled the dollars out of the sand at the bottom of the sea.

Mr. Wood always carried one of the dollars about with him. The following is the inscription:—On one side, "Carolus iiii. Dei Gratia. 1797. Hispan et Ind Rex M S R. F M." The "Divers' Arms," near the clock tower at Herne Bay, of which Mr. Wood is proprietor, owes its existence to the discovery of these dollars.

When hunting among the wreck Mr. Wood had some curious under-water adventures. One of the divers complained that he was annoyed by a lobster, and couldn't work. Mr. Wood learned the whereabouts of the creature and went down after him. He soon discovered Mr. Lobster sitting under a rock, looking as savage as a lobster can look. His feelers were pointed well forward, and he held out his two great claws wide open in a threatening attitude. Wood, knowing the habits of lobsters, offered this fellow his crowbar, which he immediately nipped with his claws. Then watching his opportunity, he passed his signal-line over the lobster's tail, made it fast, and signalled to the men above to "haul away." This they did, and away went Mr. Lobster flying up through the air above, with his claws still expanded, and as scared as a lobster could be.

A great conger-eel also paid the divers a visit. He was an immense fellow, and kept swimming round Wood, but would not come near him. Wood was afraid of his hand being bitten, as a conger's bite is very bad. He once knew a diver whose finger was seized by one, which took all the flesh clean off his finger. A conger is a very dangerous animal to a man when diving in the water. However, this one kept swimming round about Wood, so he took his clasp knife out and tried to stab him, but the conger would not come near enough to be "knifed." It was a long while before the conger would go away, and even after he had gone away Wood could not go on working because he was not sure that the brute was really gone for good, and he might have come out of some corner at any minute and nipped his finger.

He was once employed in fixing some heavy stones in the harbor at Dover; while waiting for the stones to come down from the ship above, he sat down on a rock, and being quite quiet, a shoal of whiting-pout came up to examine the strange visitor to their subaqueous residence; they played all about him, and kept on biting at the thick glass which formed the eyes of his diving helmet; so the next time Wood went

down, he took with him a fish-hook fastened to the end of a short stick—a gaff, in fact. The pouts came around him as usual, and he gaffed them one after another with his hook. He then strung them on a string, and came up after his day's work was over with a goodly fry of whiting-pouts for his supper.

On another occasion Wood was employed to bring up some pigs of lead from the hold of a vessel. When he was walking about on the top of the lead, he found something alive under his feet. It kicked tremendously, but he knelt down upon it to keep it steady; he soon ascertained that it was an enormous skate that he was standing on, so he served him as he did the lobster. He watched his opportunity and slipped the noose of his line around the skate's tail; he then signalled to "haul away," and up went Master Skate, flapping his great wings like a wounded eagle; and mightily astonished were the people in the boat when they found a monster skate on the end of the line, and not a pig of lead.

Wood once nearly lost his life when at the bottom of the sea. A Prussian vessel had gone down off the Mouse Buoy in the Thames estuary. The captain was drowned in his cabin, and Wood had undertaken to get him out if he possibly could. Arriving at the bottom of the sea, he found the vessel lying over on her side, and that she had gone down with all her sails set. He tried to get into the cabin, but found the mainsail blocking the cabin door. He was just about to return when he found his air-pipe and signal-line had suddenly got jammed. Fully aware of his very dangerous position, and without losing his presence of mind, he sat quietly on the edge of the vessel and considered. The men above he could find, were signalling violently to him to come up, but he could not answer as the line was jammed. He took out his pocket-knife, and thought two or three times

of cutting himself adrift. As a last chance he determined to adopt another course, and climbed up the rigging, among the great wet sails and loose ropes, as well as he could, and fortunately found the place where his air-pipe was hitched. He carefully loosened it, gave the signal, and was hauled up immediately.

Mr. Wood once found a "sea snake" drifted ashore near his public-house at Herne Bay. A showman declared that it was a boa-constrictor, but a very big one. The snake had probably died in some ship "from foreign parts" coming up the channel, and had been thrown overboard.

He also one day came across a live tame goose swimming all by himself off the Pan Sands, a considerable distance out at sea from Herne Bay; he caught the old goose, and he and his wife cooked it for dinner. This goose had also probably escaped overboard from some ship.

At a very low tide at Herne Bay, he discovered a fossil elephant's tusk, nearly perfect, sticking out of the mud. He had not time to take it all out before the tide came up; but still he got a large piece of it. This curious fossil ivory is now at the South Kensington Museum, England.

Mr. Wood suffered terribly for many years with rheumatism, the result, no doubt, of spending so much of his time under water, and we regret to say that since the above was written we have heard of his death. Peace to the memory of this brave, kind-hearted old Whitstable diver.

Though the nature constitution of man entirely unfits him for remaining under the water with safety for more than two minutes at a time, the desire of obtaining valuable articles lying at the bottom of the sea has led him to devise numerous expedients by which he is enabled to lengthen his continuance at moderate depths. By long practice, such as that of the Indian pearl divers at Ceylon, it is stated that this is extended to even six minutes; but such accounts are not credited. Admiral Hood, who took pains to time their diving by the watch, found that they were under water in no instance more than a minute. The instance narrated by Dr. Halley of a Florida Indian diver at Bermuda, who could remain two minutes under water, is regarded as an extreme case. In Franchere's "Narrative of a Voyage to the N. W. Coast of America," mention is made of the feats of diving of the Sandwich Islanders. Two of them were induced to go down in fourteen fathoms of water in search of a couple of sheaves lost overboard. They went down several times, each time bringing up shells as a proof that they had been to the bottom. "We had the curiosity to hold our watches while they dove, and were astonished to find that they remained four minutes under the water. When they came up the blood streamed from their nostrils and ears. At last one of them brought up the sheaves

and received the promised recompense, which consisted of four yards of cotton."

The lungs retain at each ordinary expiration some carbonic acid gas among their passages. By breathing hard for a short time this is expelled; and if a full inspiration is then taken, the lungs are charged with a large supply of oxygen, and are capable of being sustained a longer time than usual without its renewal. The knowledge of this fact might be of some service in some other circumstances in which it is important to retain the breath the longest possible time, as well as in diving. Again, it is stated that the engineer Brunel, wishing to examine a break in the Thames tunnel, was lowered with another person in a diving-bell to the depth of thirty feet, and the break not permitting the bell to go deeper, he dived into the water, holding a rope in his hand. He found no difficulty in continuing under the water fully two minutes, which is explained by the air he inhaled being taken into the lungs under the pressure of a column of water thirty feet high, and consequently condensed into but little more than half its ordinary bulk. The lungs receiving of this air their full capacity, were furnished with nearly double their usual supply of oxygen. The pressure which thus lessens the bulk of air is exerted upon all parts of the body. It is felt by the diver descending from the surface, when at the depth of fifteen square feet, as a force of nine hundred pounds upon every square foot of surface, and increasing about sixty pounds with every additional foot of descent. The air is with difficulty retained in the chest; the eyes become blood-shot, and blood is ejected from the mouth. Neither these difficulties, nor the shortness of the diver's life, however, nor the dangers from sharks, deter the natives of Ceylon from pursuing their avocation as pearl divers, nor those of the Grecian archipelago from gathering the sponges and coral attached to the rocks at the bottom of the sea.

Thou hast been where the rocks of coral grow,
Thou hast fought with eddying waves—
Thy cheek is pale, and thy heart beats low,
Thou searcher of ocean's caves!

Thou hast looked on the gleaming wealth of old,
And wrecks where the brave have striven;
The deep is a strong and fearful hold,
But thou its bar have riven.

A wild and weary life is thine—
A wasting task and lone,
Though treasure-grots for thee may shine,
To all besides unknown!

A weary life! but a swift decay
Soon, soon shall set thee free;
Thou'rt passing fast from thy toils away,
Thou wrestler with the sea!

In thy dim eye, on thy hollow cheek,
Well are the death signs read—
Go! for the pearl in its cavern seek,
Ere hope and power be fled!

And bright in beauty's coronal
That glistening gem shall be;
A star to all in the festive hall—
But who will think on thee?

None!—as it gleams from the queen-like head,
Not one midst throngs will say,
"A life hath been, like a raindrop, shed
For that pale, quivering ray!"

The artificial expedients contrived to render a longer stay under water practicable, consist, beside the diving bell, either of a partial covering for the body, made water-tight, with a metallic helmet entirely protecting the head, or of water-tight vessels of metal made to enclose the whole body, and furnished with flexible arms and with eye-plates of strong glass. Their capacity is sufficient for air to support life for a certain time—the quantity being absolutely necessary for this being at least 200 cubic inches per minute; several times as much as is allowed. The case is suspended by ropes from a vessel (see cut) and is moved about from above; the man within giving signals by a small line held in his hand. In deep water the pressure is severely felt, so that even a sort of saddle is required upon the back of the man by which he may brace himself more effectually against it.

The partial covering possesses important advantages over the tight case, but is limited in its use to depths not exceeding twelve or fifteen feet.

In 1856, Mr. E. P. Harrington, of Westfield, N. Y., recovered the iron safe of the steamer Atlantic, sunk four years previous in Lake Erie, in about 170 feet of water. The safe itself was at the depth of 157 feet. He made use of a common flexible India-rubber armor, unprotected with metal, and supplied with air from an air-pump above. He also wore shoes of lead, and carried weights of lead amounting to 248 pounds. His first descent was on June 19th, and the eighteenth and last was on the 22d, when he succeeded in attaching a line to the safe, which was in a stateroom on the upper deck, and it was hauled up. The time of his remaining below increased from one minute the first descent to eleven minutes at the last.

The deck was already covered with a sediment a few inches thick. Mr. H. suffered from extreme chilliness; his strength, too, he thinks was diminished nine-tenths. The pressure sometimes caused a violent rush of blood to the head, causing the

appearance of bright flashes like electrical sparks.

During the revolutionary war an ingenious but complicated machine, called the American turtle or torpedo, was contrived by Mr. David Bushnell of Conn., designed for a sort of submarine boat, which could be propelled along close to the surface by a man within. It contained air sufficient to last half an hour. By admitting a little water in a receptacle made for the purpose, it was made to sink, and could be kept at any desired depth. The water being ejected by two small brass forcing pumps, the machine rose to the surface. A vessel containing powder enough to blow up a ship was attached outside, which could be secured to any object it touched. An apparatus running by clock-work caused the powder to be ignited at any desired interval of time after it was left by the operator. This machine occasioned the greatest alarm among the British ships then in New York harbor.

The principle of the diving bell is seen in pressing any vessel like a tumbler mouth downward into the water. The air within the vessel prevents the water from rising and filling it; but being highly elastic and compressible, it is made to occupy less space as the pressure is increased with the increasing depth of the water. Such is the simplest form of the diving bell as it was known probably in the time of Aristotle; mention being made that divers at that period took down with them a kind of kettle to enable them to remain longer under water. During the reign of Charles V. two Greeks at Toledo, in Spain, in the presence of the monarch and his court, descended in a large inverted kettle into the water with a burning light and came up dry. But this experiment and others in the course of the succeeding two hundred years, were imperfect as there was no provision for renewing the supply of air, nor for keeping the vessel free from the water forced by the pressure within it.

Beckman furnishes an interesting account of a ship carpenter named Wm. Phipps, from Boston, Mass., who persuaded King Charles II., in 1683, to furnish him with a ship and the necessary apparatus for exploring for a rich Spanish ship sunk on the coast of Hispaniola. The experiment was unsuccessful; but on a second trial made in 1687, Phipps was so fortunate as to raise from the depth of seven fathoms so much treasure that he returned to England with the value of £200,000 sterling.

About the year 1715, Dr. Halley contrived a method of furnishing air to the bell while it was at the bottom, thus rendering it unnecessary to hoist it to the surface for new supplies, and one in the bell could step about upon the bottom in the area covered by the bell. Dr. Halley descended with four others, and remained one and a half hours in water over nine fathoms deep.

Interesting experiments were also made with a diving bell in Portsmouth harbor, N. H., in 1805. The bell inside was five feet in diameter at the bottom, three feet at the top, and five and a quarter feet high. Two men descended in it at a time. The greatest descent made was about seventy-two feet. In a clear day and with an unruffled sea they had sufficient light for reading a coarse print at the greatest depth. As they moved the pebbles with their gaffs at the bottom of the river, fish in abundance came to the place like a flock of chickens, and were as devoid of fear as if it was a region where they had never been molested by beings from the extra-aquatic world. From the description of the adventurers, no scenery in nature can be more beautiful than that viewed by them in a sunshiny day at the bottom of the deep Piscataqua.

An improved form of the diving bell has been recently brought into notice, to which the name of nautilus is given, and a patent has been issued to Major Sears of New York, who has perfected its construction. Like the torpedoes alluded to above, it is provided with chambers distinct from those occupied by the divers, but under their control, so that they may at their will be filled with either air or water. By this means the specific gravity of the machine is made to vary so that the bell may rise to the surface or sink to any desired depth. The trap door in the bottom being raised, communication is thus opened with objects outside of or below the bell. Guy ropes from the surface pass through the chamber occupied by the operators, being secured by stuffing boxes in the sides. By drawing upon these, the bell is moved in any direction by the persons within. The bell has been used recently with success in New York harbor.

The accompanying illustration furnishes a very good idea of the diving apparatus now in use.

It is remarked by some writer, that "excess of ceremony shows want of good breeding." This is true. There is nothing so troublesome as overmuch politeness. A truly well-bred man makes every person around him feel at ease; he does not throw civilities about him with a shovel, or toss compliments in a bundle, as he would bay with a pitchfork. There is no evil under the sun more intolerable than ultra-politeness.

In South America there is a prolific honey-bee which has not been furnished with a sting.

CHARITY is never lost; it may meet with ingratitude, or be of no service to those on whom it was bestowed; yet it ever does a work of beauty and grace upon the heart of the giver.

Prison Life in France.

There are twenty-one central prisons in France for prisoners with sentences of five years and over. The cell system is adopted in prisons for the detention of prisoners not sent up for more than a year and a day, but in the central prisons as many as 100 sleep in one ward, certain of their number being responsible for the preservation of order. The dormitories are lighted, and there are openings from the galleries through which the guards may inspect them. By day the men work in *ateliers*, fifty or a hundred in umbrella ferules, Chinese lanterns, etc., are manufactured, and such light work as glossing paper, sewing copy books and making hair ornaments is done. The work is let to contractors by a tariff fixed by the Local Chamber of Commerce, to prevent any undue competition with free labor. Half of the profits of the prisoner's work goes to the State; he is allowed to spend a quarter in procuring special articles of diet, etc., and the remaining quarter is paid him on leaving, so that a discharged convict finds himself with from \$100 to \$300 cash capital. A large proportion of the prisoners use this in settling themselves up in trade or in procuring passage to other lands. These rewards of industrial labor, together with the industrial training itself constitute together the main and tolerably effectual counterbalance of the otherwise grave evils of association. The element of hope is always prominent in French prisons, and it is the sheet anchor of their administration. A visitor to La Sante, at Paris, observed in the first cell he inspected a table on which lay a pipe of tobacco, a half bottle of wine and a novel.

Jugglers and Snake Charmers of Madras.

In a city so famous for jugglers, snake charmers, acrobats and *chevaliers d'industrie* generally—ladies and gentlemen who live by their wits in the most proper sense of the word, and who apparently make a good living—no person could remain long without witnessing the feats of skill for which these wandering Madrasses are celebrated. Thursday being a comparatively open day, therefore, the morning was selected for an *al fresco* exhibition of this kind. The town lost the nomads; Government house received them. Let us look at the savage who appears to make the dried skin of a cobra alive. It is a favorite trick; you may see it done twenty times a day in the streets of Madras. You may examine the apparatus closely every time and watch the operation as carefully as you please, yet you cannot detect the *modus operandi*. The performer hands you a little flat wicker basket some eight inches in diameter and asks you to inspect it, while he folds the cobra skin, which you have previously well examined, into a square, leaving only the tail unfolded. As soon as you have given the basket back the juggler places it on the ground in full view, and under the lid puts the folded part of the serpent's skin, the tail being in your sight all the while. You may at this stage lift the lid once more to see that nothing but the serpent skin is in the basket, after which you must rest content. A white cloth is taken by the man and placed over the basket, after having been well shaken so that you may be assured nothing is in it. A pipe is produced, and with it a horrible noise similar to that always made by snake charmers, and not unlike the sound a cracked and badly made bagpipe would emit is made. No one goes near the cloth except the almost naked man, who cannot possibly hide any live snake in his sleeves, for the simple and sufficient reason that he has neither sleeves nor jacket, nor, indeed, any other kind of clothing than a small waist cloth, which would certainly be a most inconvenient hiding place for a lively young cobra. The sheet is lifted; you look at the basket and see the tail of a living snake being gradually drawn into it, and, on the lid being opened, a most distinctly energetic snake is discovered. No sooner is it stirred than it rises on its tail, spreads out its hood and strikes with its fangs and tongue at the charmer.

No one would care to examine that basket now, with a cobra four feet long making vicious snaps at the juggler. The charmer takes good care that the snake comes near you, for with a dexterous movement he seizes the reptile by the head, and, holding it in one hand, comes to you with the basket in the other, while you put a rupee into the receptacle if only to induce him to go

away. The snake gone, a stout, strong girl comes forward, makes a deep obeisance, and then stepping back, throws a man weighing fully eleven stone over her shoulders. Nor does she stop here, for she seizes her victim once more, places him crosswise on her back, and then tosses him into the air as though he were made of feathers, and not a broad-shouldered human being. Turning backward on her feet she picks up straws with her eyelids, throws somersaults and lifts weights which would astonish the ordinary London acrobat. While she is thus performing, jugglers are changing pebbles into birds, birds into eggs and eggs into plants; men thread needles with their tongues, join innumerable pieces of cotton into one long cord, keep half a score of sharp knives in the air at once, throw cannon balls with their toes, and spin tops on the end of twigs. Pandemonium reigns. The clatter is unbearable, and one is compelled to dismiss the tribe of vagrants without any further delay.

An Arabian Thief.

An Arab introduced himself, creeping on all fours like a quadruped, into the tent in which one of the beys was reposing, and carried off his clothes and arms, with which he attired himself. Quitting the tent very early in the morning, and assuming the manner and haughty carriage of the chief, whom he left asleep, he so imposed upon the attendants by his appearance that they led forth their master's horse, which the Arab mounted and rode off without creating suspicion. An hour afterwards the servants were surprised at hearing the voice of the bey proceeding from the tent, calling for assistance. The latter was still more astonished than his servants; the boldness and adroitness of the thief appeared to him totally incomprehensible. After several weeks spent in fruitless endeavors to discover the delinquent, the bey announced a free pardon to whomsoever would acknowledge in what manner his arms had been removed from under the pillow on which he slept. Some days afterwards the identical Arab presented himself before the bey, and, reminding him of his proclamation, motioned him to recline on his couch and remain silent, while he should explain the mode by which he effected the robbery. The Arab forthwith dressed and armed himself as before, left the tent, and again deceived the domestics, who brought out for his use a valuable and favorite horse, and, moreover, a magnificent pipe, supposing all the time they were waiting on their master. During the whole of this scene, the bey, who saw what was passing was convulsed with laughter; but his merriment was soon checked when his prototype fairly made off, at full gallop, with his weapons and baggage.

Josephine's Sanctuary.

At Malmaison, Josephine consecrated one room to the memories of happy days passed there by Napoleon before his divorce from her. It was a room then used by him as a study whenever the cares of war and politics permitted him to seek a temporary rest in her society in that charming retreat; and when she was left there alone to mourn their separation, she would allow nobody to occupy the room but herself. In it lay the pen last used there by the Emperor, which the ink had long since corroded; on a table lay the map he had last studied; over there, the line of march tracked out which had long since taught Europe to feel the power of his tactics; on the wall hung a glass case in which some of his hair was arranged in ornamental or symbolic form. It was so long since that hair had grown on his head, that the sight of it must have carried back Josephine's memory to the time when she, the widowed Vicomtesse de Beauharnais, determined on marrying its owner, the young soldier of fortune, with nothing but "his love and his sword and his cloak to offer her." Such a sanctuary indeed was this chamber at Malmaison to the Empress, that she would not allow any hand but her own to dust or move the objects in it which had been consecrated, as she deemed, by the touch of the husband who had sacrificed her to his ambition, and in so doing had lost his guiding star, the guardian angel, of his life.

QUEEN VICTORIA has received from the Empress of Brazil a present of a dress woven of the webs of the large South American spider.

Curious Facts in Animal Life.

Fishes have no eyelids, and necessarily sleep with their eyes open. They swallow their food whole, having no dental machinery furnished them. Frogs, toads and serpents never take food but that which they are satisfied is alive. When a bee, wasp or hornet stings, it is nearly always at the expense of its life. Serpents are so tenacious of life that they will live for six months or longer without food. Seals can be trained to perform many tricks. It is believed that crocodiles live to be hundreds of years old. The Egyptians embalm them. In South America there is a prolific honey-bee which has not been furnished with a sting. The head of the rattlesnake has been known to inflict a fatal wound after being severed from the body.

Our Enemies and our Allies.

Insects sting us either with a kind of proboscis to suck our blood, or by a similar structure in the hinder part of the body, in order to make a place in which to deposit their eggs, or simply strike with this natural weapon as an arm of defense, or, what is still worse, of wanton offense.

The mosquito and its numerous family take the first rank. Virgil has sung of him, so has Bryant. He is found amid the snows of the Arctic regions and the dense vegetations of tropical swamps. The temperate zones are less affected than the extremes, unless in parts where marshy flats or shallow lakes abound. The United States is favored with them from Jersey to the Lower Mississippi, and an early missionary traveler on that river gives an amusing and pathetic description of his sufferings from these tiny enemies, in the early part of the last century.

An Eastern traveler, after alluding to Moore's beautiful description of the Lake of Cashmere and its planetree isle reflected clear, remarks that evidently Moore had never been there, or the swarm of mosquitoes would have taken all the poetry out of his nature and made him describe it in terms as indignant as those he gives are laudatory. The sting of these tiny enemies is composed of five long darts, protected by a kind of sheath split open. Two of the darts are finely laced; one has fine silky hair, two others are like lancets. The five darts form a hollow tube through which it sucks up the blood. It has no poison sack, and whatever it deposits that causes pain is a matter of doubt. Some think that it is a saliva which makes the blood more fluid. Painful and annoying as it is, compelling us to close our windows with nets, and surround our beds with similar defenses, it cannot be said to attack unawares. Its shrill music announces its presence, though some may say that its hum is as annoying as its sting.

The changes of this class are curious. The eggs are laid in a kind of little ark, glued together so that they float on the surface of the water in some pool. The young insect lives in the water, swimming with great celerity, with a wriggling motion, generally head down, antennae supplying the place of legs, and serving to convey food to the mouth. They then pass to the chrysalis state, and float shut up in a kind of sack till fully developed, when they rise to the surface, and the sack becomes a tiny boat from which it carefully disengages itself to take wing.

The Diptera include other enemies. Their two membranous and transparent darts, never horny or opaque like the coleopatra, are covered with a scaly down.

The gad-fly that torments horses and cattle, and the debabe, a similar insect that molests camels, belong to this class. The Arabs think that the debabe, by living on serpents, acquire their venom and so infuse it into the unfortunate camels. When assailed by its winged enemies, a dromedary suffers great pain; it rolls, falls down, utters furious cries, rolls on the ground in all directions, and loses all self-control. It will plunge into water, roll on thorns or stones—anything to rid itself of the pest.

A French general says: "Crossing a river near Taret, our dromedaries were for the first time attacked by the debabe. Each animal had its belly covered with thousands of these flies, of which it sought in vain to free itself by leaping, by beating with its feet, by rolling on the ground. Fortunately, about four o'clock they disappeared and allowed our dromedaries to take the rest and food they needed sorely."

The sting of the debabe, when numerous, cause the camel to lose flesh and waste away under its pain and inflammation. Sometimes whole herds become maddened and dash into rivers to drown.

The Arabs avoid traveling by mid-day, and at night surround their camels by a circle of moist straw, which they set on fire, and by the smoke drive off the obnoxious insects. The gad-fly has other varieties; the most deadly being the terrible testse of tropical Africa, the sting of which kills oxen, horses and dogs, but is said to be harmless to man, the goat, and sucking calves. But the creature is too little known to trust implicitly to these statements.

The Light-House.

Probably no invention of the past century has done more to lessen the dangers of navigation than the invention, or rather the perfection, of the light-house system of signals. Those who have had the opportunity of visiting the Centennial Exposition during the past summer have observed the excellent exhibit of the light-houses in the Government building, and have a better idea of the manner in which light is thrown to such a distance than we could possibly give in a short article like this.

A little more than one hundred years ago, the only light signals known were huge bonfires built upon the coast. These, of course, were expensive and inefficient, and many eminent men had long been endeavoring to invent a cheaper and better substitute; but without success. It is almost within the memory of some of the oldest persons now living that the present system was discovered; and that, too, by accident.

A gentleman in Liverpool laid a wager that he could read the small print of a common newspaper by the light of a farthing candle, thirty feet distant. The wager was accepted, and the gentleman placed a concave mirror, the focus of which was thirty feet distant, back of the candle, and the result was a perfect success.

Among the spectators, was one, a clock master in Liverpool, who was of a practical turn of mind; and the idea at once flashed upon his mind that, if the light of a small candle could be thrown such a distance, the light of a large lamp might, in the same manner, be thrown several miles.

The experiment was tried, and proved to be an admirable success; and wise men were not slow to perfect a system of signals, which has, by more than half, lessened the perils of the sea-faring man. By means of a prism it was found that the rays of light could be reflected in parallel beams to a distance of twenty-six miles. The curvature of the earth prevents it being seen at a greater distance.

There are now over fourteen hundred light-houses on the shores of the Mediterranean Sea, and about the same number on the Eastern and Southern coast of the United States.

Strange Revelation by the Microscope.

There is a story that an eminent microscopist had a bit of substance submitted to him to decide what it was. To an unaided eye it might be a morsel of skin which a baggage-smasher had knocked off the corner of a smoothly-worn hair trunk. The savant appealed to his microscope. Entirely ignorant of this tiny bit of matter except as he had taken counsel with his instrument, the wise man declared that it was the skin of a human being, and that, judging by the fine hair on it, it was from the so-called naked portion of the body, and further, that it once belonged to a fair-complexioned person. The strange facts now made known to the man of science were these: That, a thousand years before, a Danish marauder had robbed an English church. In the spirit of the old-fashioned piety the robber was flayed, (let us hope that he was killed first) and the skin was nailed to the church door. Except its tradition or archaeological lore had it, the affair had been forgotten for hundreds of years. Time, the great erodent, had long ago removed the offensive thing. Still, however, the church door held to its marks of the great shame, for the broad-headed nails remained. Somebody extracted one, and underneath its flat head was this atonic remnant of that ancient Scandinavian malefactor's pelt—that fair-skinned robber from the North.



TO A ROBIN.

BY M. H. F. DONNE.

Robin, sing, I'm glad to-day,
And I love to hear you,
Sitting on yon icy spray,
With no playmate near you.

Robin, sing, I'm glad to-day,
Though the frost is bitter;
In their scarlet mantle gay
Holly-berries glitter.

Robin, sing, I'm glad to-day—
Snowdrops will be peeping
Through the hard ground, where they lay
All the winter sleeping.

Robin, sing, I'm glad to-day,
Though the snow falls thickly,
And the sky is dull and grey,
Making night come quickly.

Robin, sing, I'm glad to-day,
Glad for what is coming—
April showers and pleasant May
Bees and their sweet humming.

Robin, sing, I'm glad to-day—
Winter's cold and dreary,
But the Spring is on its way—
Sing and do not weary.

Robin, sing, I'm glad to-day,
Glad to have you near me,
Sitting on yon icy spray,
As you sing you cheer me.

The Power of Music.

The King of Spain was once given up to the most distressing form of madness. He sunk into the deepest melancholy, shut himself up in the seclusion of a darkened chamber, and nothing could arouse him to the slightest interest in the affairs of life.

As a last resort, the physicians ordered the famous singer, Farinelli, to sing in an outer room adjoining the apartment of the royal patient. At first the melody appeared to have no effect, but after a time the king's attention seemed slightly awakened, tears started to his eyes, and he commanded the door of his chamber to be opened. Softer, sweeter fell the strains, more soothing the melody, until, like another David, Farinelli had exorcised the evil spirit, and Saul was himself

again. The "medicine" of song has more than once been employed in soothing distracted brains, with the most satisfactory results.

A lady in New Hampshire, who had been from early life afflicted with that terrible nervous disorder, St. Vitus' Dance, was able, by careful attention to diet and by avoiding all excitement, to lengthen the intervals between the paroxysms to many months. When they did come on, nothing was found so quieting as gentle, soothing music. Music of an opposite character had exactly the opposite result.

There was an old general who served under the great Duke of Marlborough, who was by nature so timid that he dreaded and trembled before an engagement. But when the drums and bugles sounded, the old soldier roused himself like a war horse, and needed both bit and rein to restrain him.

A party of Cossacks once entered a church in Dresden, attracted by the sound of the organ. They listened with most profound admiration and deep delight to the song service, but when it ceased, and the minister began his sermon, they soon exhibited signs of impatience. At length one of these rough soldiers stole softly up the aisle and pulpit steps, unseen by the minister, and gave him quite a start by tapping him on the shoulder, and, by vigorous signs, inviting him to sit down and give the organ a chance again, so that his delight and that of his companions might not be longer interrupted. Long sermons would not suit that class of hearers.

The Silver Bells.

In Eastern poetry they tell of a wondrous tree, on which grew golden apples and silver bells; and every time the breeze went by and tossed the fragrant branches, a shower of these golden apples fell, and the living bells chimed and tinkled forth their airy ravishment. On the gospel tree there grow melodious blossoms; sweeter bells than those which mingle with the pomegranates on Aaron's vest; holy feelings, heaven-taught joys; and when the wind bloweth where he listeth—the south wind waking, when the Holy Spirit breathes upon that soul, there is the shaking down of mellow fruits, and the flow of healthy odors all around, and the gush of sweetest music, where gentle tones and joyful echoings are wafted through the recesses of the soul. Not easily explained to others, and too ethereal to define, these joys are, on that account, but the more delightful. The sweet sense of forgiveness; the conscious exercise of all the devout affections, and the grateful and adoring emotions Godward; the lull of sinful passions, itself ecstatic music; an exulting sense of the well-ordered covenant; the gladness of surety, righteousness, and the kind spirit of adoption, encouraging to say "Abba, Father;" all the delightful feelings which the Spirit of God increases or creates, and which are summed up in that comprehensive phrase, "Joy in the Holy Ghost."

DR. JAMES HAMILTON.

Boy Nature.

I have thought that the boy is the only true lover of Nature, and that we who make such a dead set at studying and admiring her come very wide of the mark. "The nonchalance of a boy who is sure of his dinner," says our Emerson "is the healthy attitude of humanity." The boy is a part of Nature; he is as indifferent, as careless, as vagrant as she. He browses, he digs, he hunts, he climbs, he halloes, he feeds on roots, and greens, and mast. He uses things roughly and without sentiment. The coolness with which boys will drown dogs or cats, or hang them to trees, or murder young birds, or torture frogs or squirrels, is like Nature's own mercilessness.

Certain it is that we often get some of the best touches of nature from children. Childhood is a world by itself, and we listen to children when they frankly speak out of it with a strange interest. There is such a freedom from responsibility and from worldly wisdom. There is no sentiment in children, because there is no ruin; nothing has gone to decay about them yet—not a leaf or twig. Until he is well into teens and sometimes later, a boy is like a bean-pod before the fruit is developed—indefinite, succulent, rich in possibilities which are only vaguely outlined. He is a pericarp, merely. How rudimentary are all his ideas. I know a boy who began his school composition on swallows by saying there were two kinds of swallows—chimney swallows and swallows.

Girls come to themselves sooner; are indeed from the first, more definite and "translatable."

Teaching School in Old Times.

"Barring out the schoolmaster" is an exploit of pioneer times that has been gradually going out of date, until now it is rarely heard of except in remote backwoods districts, where "ye ancient customs" are still in vogue to some extent. Lest some of my young readers may not understand what this exploit is, I will briefly explain.

Years ago, in all the Western States, it was customary in rural school districts for the "big boys" of the school to bar the doors and windows of the school house, on Christmas or New Years, and refuse admittance to the teacher unless he would "treat"—that is, furnish apples and cider for the whole school. The victory generally lay with the party that first obtained possession of the school-house on the morning of the day in question. Sometimes the teacher was ahead, but more frequently it was the "big boys." I have known them to sleep in the school-house all night so as to be in possession in the morning.

Many teachers regarded it as a matter of honor, with them, not to be barred out, and many serious contests have resulted in the effort to obtain the victory. Sometimes when the boys were found in possession in the morning, the teacher would "smoke them out"—that is, he would ascend to the roof and throw brimstone down the chimney and then lay a board over the top of the fue; the same thing would be resorted to by the boys to expel the teacher.

Frequently the teacher, regarding discretion better than valor, would capitulate at once, sign the article of treaty which was always prepared beforehand, and would be handed out through the window. As soon as it was signed, the doors were thrown open, and the smaller children—who always looked on from the outside with the keenest delight—were admitted, school called to order, a committee appointed to go and get the cider and apples, and the day was spent in "having fun," as it was popularly termed.

In those days teachers were regarded as a kind of common enemy—a necessary evil—and the best teacher was the one who had the most muscle and courage. If he could, by brute force or superior will, control the "big boys," he was a "lion," and was universally respected. On the other hand, let his abilities as a teacher be ever so good, they counted nothing if he failed to subdue the rebellious spirit found in nearly every district, and which always stood ready to measure strength with each new master.

In some cases every artifice would be practiced to annoy the teacher, and if possible drive him out of the district; and where the opposing forces were nearly equal in skill and artifice, the contest would be carried on during the entire winter term. I want to relate a story of one of these contests.

District No. 2 had an enviable reputation for its prowess, for miles around. It was the boast of the big boys of the school that no teacher had ever stayed his term out, yet, and as long as the present race attended school, it was the determination to maintain the reputation achieved. The leader of these rebels was Dick Johnson, a great brute of a boy eighteen years old, son of Johnson, the landlord of the only tavern in the village. Dick never studied—never went to school for that purpose—and at eighteen could scarcely write his own name legibly. He could fight, however, especially a weaker party, and all the reputation he had was obtained in this way. Like all boasters, he was a coward at heart, and was careful not to match himself alone with an equal or superior.

Dick had three or four boon companions in the district; boys of his own age, his equals in manners but not in cunning, and the latter quietly gave him the leadership.

On the first Monday of November, 1846, Henry Marvin commenced his school in District No. 2. He was a young man of strong, wiry muscle, and had a keen black eye, and a firm expression of countenance that revealed the energy and determination within. He had been "hired" by the directors because of his reputation for controlling the turbulent elements of his schools. Dick and his companions had been told before school began that "they would find their match this time," and they had vowed that they would "run him out as they had done all the others."

Dick and his fellows were on hand on this first Monday, and all had taken their seats together as usual. The forenoon passed without incident, the bearing and appearance of Marvin being sufficient to make the boys reflect before commencing hostilities. By the middle of the afternoon, however, the monotony of good behavior was getting irksome. No "first day" had ever passed yet without a trial of skill, and the boys felt that they must make the attempt. They began to whisper and talk. The teacher intuitively understood the situation, but went on with his duties as usual. The noise and confusion in Dick's seat grew louder and louder. Still the teacher paid no attention—he was waiting his time. He had fully measured the boys' capacity, and had made up his mind that any appeal to their better nature would be thrown away. Brute force and superior tactics must be applied.

The apparent indifference of the teacher gave the boys confidence, and from words they proceeded to actions. Reaching over the seat to the pail of water, Dick dipped a gourd full, and, standing up on his seat, threw it with all his force over the teacher and a class of little girls that were reading. Something of this kind was what Marvin was waiting for. A shout of laughter from the school was followed by a lull of expectation. "What would the teacher do?"

They were not left long in suspense. Walking to the door he opened it, and then facing Dick, he said:

"Leave this room immediately!"

"No you don't," retorted the champion. "If anybody leaves it's you," and his companions backed him up with a "That's so."

There was a large stove in the room, and at this time was full of wood about half burnt. The sticks were too long for the stove, and the ends sticking out were not afire. Marvin stepped quickly to the stove, and seizing a brand, threw it with all his force among the rebels. Never were boys more astonished. Before they could move a second brand followed the first. Coals of fire flew in every direction, the dry benches were beginning to blaze, and smoke half filled the room. Not only did the four boys "leave the room," but in a panic all the school followed. Marvin put out the fire, swept out the dirt, coals and litter, put things to rights, and called the scholars in again. All came in again but the ones who caused the trouble. They were all more or less burned, Dick pretty badly, a live coal having struck him square in the cheek, producing a large blister. Their clothes were burned in spots, too, and they all went home to doctor and repair.

Thus ended the first day of school. Though gained by questionable means, it was a victory for the teacher. But the contest did not end here. The parents of the four boys, enraged at the action of the teacher, vowed vengeance, and declared that their sons "should yet put the teacher out and give him the biggest lickin' he ever got."

Rupert's Land.

Between the Esquimaux in the northern part of British America, and the Cree Indians in the southern part, there is a large tribe called the Lonchoux, which are thus spoken of by a traveler:

Each family has a deer-skin tent or lodge. In summer, when the family is generally traveling in search of game, the tent is seldom put up. The winter encampment is usually made in a grove of firs. Skins are stretched over willow poles, and the tents are like the Esquimaux snow huts in shape. Snow is banked high up on the outside, and the door-hole is arranged to close with a double fold of skin that gives them the warmth without the beauty of the snow-house.

Missionaries describe them as an active race and intelligent, with sparkling eyes and good complexion. They show the greatest aptitude to receive the teachings of the Gospel, which encourages those earnest souls who believe that to all nations of the earth the glad tidings shall be borne.

The missionaries have to endure hardships—eating strange food without bread for weeks; their habitations must be similar to dog-kennels at home; but to those who can hope all things, and believe all things which they find in the Good Book, the "well-done, good and faithful servant" will be sufficient reward for them.

Combat Between Two Polar Bears.

A German paper recently contained an account of a combat which took place in the Zoological Garden of Cologne, between two polar bears, which, that journal remarks, "a Roman Emperor would assuredly have paid a million sesterii to witness." These two bears had been brought from Spitzbergen five years ago, and had been placed in a large pit, with a tank in the centre. Until within the last few days they had remained upon excellent terms with each other, but last week a quarrel occurred between them, the result of which was that the female bear took refuge upon the summit of a large rock in one corner of the pit. The male did not attempt to follow her, and she remained there three days, when, pressed by hunger, she descended again. As soon as the male bear saw her he immediately rushed at her and attacked her with his fore-paws. The keepers attempted to separate them, and belabored the male with heavy iron bars, but the bones in the head of the polar bear are so much harder than those of the ordinary bear that these blows took no effect. The male bear continued to wreak his vengeance upon his companion, and, after having almost torn her body into ribbons, he dragged her to the bottom of the tank, and held her there until he felt assured that all sign of life was extinct. He then brought her body back to the floor of the pit, and dragged it around the tank for nearly an hour. After this, he withdrew into his sleeping-den to rest from his labors, and the keepers at once closed the iron bars upon him. Having examined the body of the dead bear, they found that it had received more than a hundred wounds; the neck and head were crushed almost to a jelly, and the flesh was hanging in strips from the back and sides. During the whole combat neither of the bears uttered a cry or sound of any kind.

What Some Patents Have Done for the Community at Large.

Perhaps no branch of industry can be selected that has a more direct bearing on the interests of all classes than the making of books and newspapers. And what has been the agency of patents in the development of this single art, identified with the intellectual, moral and material welfare of the entire community? Commencing with the paper; it was cheapened three cents a pound by the invention of Watt and Burgess in 1854, which consisted in boiling wood pulp in caustic alkali under pressure.

As concerns the type, David Bruce, Jr., by machines patented in 1843, reduced the cost fully twenty-five per cent; he used a pump to force the molten type-metal into the moulds to secure a sharp, clear letter, on the type, and for the production of some varieties enabled steam power to be used. Then as to printing, the press used by Franklin over a century ago gave but one hundred and thirty impressions an hour, but to the year 1847 successive patented improvements brought the capacity of newspaper printing up to from twenty-five hundred to fifty thousand impressions an hour, the former of large, the latter of small newspaper size. This was the famous Napier double cylinder press, an English invention. It was believed that with this machine the limit of speed was reached; that if a newspaper's circulation should exceed twenty thousand copies daily, all the type, presses, and appointments of the printing office, as well as the force of compositors, pressmen, proof-readers, and others, would have to be doubled. And all this time the public were calling for more newspapers, more books, more periodicals, more printed matter generally. It was at this time that R. M. Hoe produced his great improvements in printing machinery, now so well known. In the year 1861 one of the New York Journals printed a daily edition varying from 115,000 to 130,000 copies, and this was printed in four hours and a half. To have done the same work on a Napier press would have required five additional forms of type, each at a cost of one thousand dollars per week, making five thousand dollars per week, or \$260,000 per annum in type alone in this one newspaper office, to say nothing of additional presses, room, and workmen, that would have been required by the Napier presses. During the fourteen years immediately following, Hoe sold forty

of his great presses, and the gain to the public may be fairly estimated from the instance above given.

After the papers are printed they must be folded, and this was formerly done by hand. About the year 1859 Cyrus Chambers began a series of inventions for doing this by machinery, and in 1874 he had brought into use seventy-two of his patent "newsfolders" for folding newspapers. The cost of running these machines was \$2 a day each, and each accomplished the work of five men. The same work by hand cost \$8.75 per day, being a saving of \$6.75 per day for each machine, and these newspaper folders alone, during the original term of the patent, effected an economy of labor amounting to upwards of one million one hundred and sixty-five thousand dollars. But this, like the improvements in paper making, in type-founding, and in printing, extended far beyond the production of newspapers.

During the same period the paper-folders for duodecimo publications saved in labor more than \$139,000; for quartos more than \$64,000; and for 32 mos. more than \$532,000—making from one patent alone, in less than fourteen years, a saving of human toil and exertion amounting to more than two million two hundred and forty-three thousand dollars; and the economy is to continue and increase for all time, never to be diminished, but likely to be increased by added improvements called forth by the encouragement of the patent laws.

Turning to other patents relating to articles of general use, we find universally the same results. We can all recollect the time when feminine fashion called forth immense quantities of tempered steel wire for crinolines. At the outset the wire cost three dollars a pound, because in tempering it was necessary to wind the flat wire in volute coils kept apart by interlaced iron wires, the coils being thus carefully heated in a furnace, and then plunged into a hardening bath. In August 1858, Henry Waterman patented a plan of drawing the wire lengthwise from the fire through the hardening liquid, and by this means reduced the cost of hardening from three dollars a pound to three cents. As a result the steel skirt instead of being the fanciful luxury of the rich, was brought within the reach of the poorest. But, far from this, the method has been found available, with this economy, in the manufacture of tempering wire for the manifold purposes of manufacturers and engineering.

The copper-toed shoe is a well known example of the economy brought about through patents. The saving to this country is estimated at from six millions to twelve millions annually.

The superintendent of a "Home for Little Wanderers" certifies that it reduced the cost of shoes for the children in the establishment from one thousand dollars a year to four hundred.

Patents for improvements relating to shoes for horses are equally instructive. To make horse-shoes by hand costs an average of sixteen cents each, without counting the cost of the iron. So far back as 1835 Henry Burden began the invention of horse-shoe machinery, and in 1857 patented what is claimed to be the first really successful apparatus—although some of his previously patented devices were included in it—and in 1871 horse-shoes were sold, iron included, at four and a half cents each, the shoes weighing on an average one pound each. The absolute benefit to the public cannot be calculated, but the gain to the government during the late war amounted to four millions of dollars. And the same motives which led Henry Burden to his long-continued and finally successful efforts—the reward offered by the patent laws—is urging other inventors to still further improvements in the same line at the present time.

The Way of It.

Old Time first covers our heads with hair;
Afterward quietly mows them bare;
First cuts our teeth with a mighty fang;
Anon takes care that our teeth "cut" us.
First manufactures us nimble legs,
And then converts them to "stiff old pegs."
Coming to earth with squalls and tears,
Pleasure beguiled a few brief years,
Harassed thereafter by Care and Doubt,
Fighting for much we might do without,
Hoping and trusting for bliss to come—
So, in amazement, we reach the tomb.

Charles Sumner.

Charles Sumner was born at Boston, Mass., on the 6th of January, 1811. His father, Charles Pinckney Sumner, was a prominent citizen of Boston, and for fourteen years sheriff of Suffolk County. The subject of this brief biography was educated at the Latin School of his native city, from which he passed to Harvard College, where he graduated in 1830. Upon leaving college he entered the Law School at Cambridge, and was under the direct supervision of Judge Story, and the warm intimacy which sprang up between the young man and the great jurist was terminated only by the death of the latter.

While he was a student, Mr. Sumner became a contributor to the *American Jurist*, a quarterly law journal of decided ability, and of extensive circulation.

In 1833 he edited an edition of Andrew Dunlap's "Treatise on the Practice of the Courts of Admiralty in Civil Causes of Maritime Jurisdiction." Mr. Sumner's skill and learning, as displayed in this work, won him great distinction in his profession.

In 1834, he was admitted to the bar at Worcester, and returning to Boston he entered upon the practice of his profession. From the first he obtained marked success. Soon after his admittance to the bar, he was made Reporter of the United States Circuit Court, in which capacity he published three volumes of Judge Story's Decisions. At about the same time he was given the editorial charge of the *American Jurist*. In this direction he displayed fine talent and rare judgment. For the next three years he lectured satisfactorily to the students of the Cambridge Law School. Before his death, Judge Story expressed his desire to have Charles Sumner succeed him in the Law School.

In 1837 Mr. Sumner went abroad and spent three years in travel, studying the institutions and laws of the countries through which he passed. The letters of introduction which he carried ensured him very flattering receptions wherever he went, and his personal qualities won him many friends. During the year which he remained in England, he was a constant attendant upon the debates in Parliament, and he made many acquaintances among distinguished public men. He attended the courts at Westminster Hall, and was often invited to sit with the judges at the trials.

In France, Germany and Italy he received similar attentions from scientists, jurists and literary men.

In 1840 Mr. Sumner returned home and resumed the practice of his profession. In 1843 he was again appointed lecturer at the Law School. In 1844 he began the publication of "Vesey's Reports," in twenty volumes. The publication was completed in 1846. The *Boston Law Reporter*, referring to the able manner in which this task was executed, said of him: "In what may be called the literature of the law—the epiphanies of legal learning—he has no rival among us."

On the 4th of July, 1845, Mr. Sumner delivered an address in Boston, entitled "The True Grandeur of Nations." It was a plea in behalf of universal peace.

Mr. Sumner was an eloquent anti-slavery advocate. Whatever proposition was made with the most remote probability of its aiding in the extension of slavery, he opposed with all his energies.

Massachusetts sent him to Congress, and while there he so energetically and persistently fought against the extension of slavery that he aroused most bitter enmity among the Southern members. It was in May, 1856, that the brutal attack upon his life was made by Preston S. Brooks of South Carolina. It was while Mr. Sumner was sitting at his desk, after the adjournment of the Senate, that the assailant came up behind him and struck him over the head with a heavy cane, while another South Carolinian, Laurence M. Keith, stood by with a loaded pistol to prevent any interference on the part of Mr. Sumner's friends. Messrs. Morgan, Murray and Chittenden, recovering from their amazement at the audacity of the attack, rushed in and put an end to the shameful affair. Mr. Sumner, bleeding and insensible, was carried to his lodgings. The beating was so severe that he was obliged to leave his seat in the Senate and seek medical aid abroad. Thanks to the skill of Dr. Brown Sequard, then of Paris, but since of New York, aided by a vigorous constitution, Mr. Sumner recovered, and after an absence of four years was able once more to take his seat in the Senate; but from the

effects of those injuries he never fully recovered. Brooks and Keith were treated with such severe and righteous censure that they resigned their seats to save expulsion.

In June, 1860, Mr. Sumner delivered his able address, "The Barbarism of Slavery," and in '60-'61 he was firm and decided as to the course which the Government ought to pursue towards the seceding states. But he was cautious and not boisterous in his sentiments, always with an eye single for his country's future and general good. In 1865 he was elected to a third term in the Senate. He advocated conciliation in dealing with the South after the war. In 1869 he was returned to the Senate by the Massachusetts Legislature.

An unpleasantness occurred in 1870 between him and President Grant concerning the annexation of St. Domingo, and he was removed from the chairmanship of Foreign Relations, a step which many public men regretted.

But the fatigue of public life, with its broils and turmoils wore upon his health, never so good after the attack of Brooks, and his physician ordered quiet and rest; but absolute inactivity was out of the question with Sumner's active, intellectual temperament. Yet as his health steadily failed, he made another voyage to Europe in June, 1872, in the hope of being benefitted by the change. At the opening of Congress in December, 1872, he was again in his seat in the Senate, and soon after this he earnestly opposed the retaining on the Army Register and on the regimental colors, the names of the battles won by the North; and however much our Northern feelings arose in arms at this seeming sacrilegious eclipsing of our martyr heroes, were it not, in reality, wiser if we wish to heal the wounds also to strive to obliterate the scars?

Although an invalid, he was usually in his seat during the winter of '73-'74; but on March 10th, he was seized by so violent an illness that his physician experienced the gravest alarm; and his fears were correct, for after twenty hours of extreme agony he died on the afternoon of March 11th, 1874, at the age of sixty-three.

His mortal remains were conveyed to Boston and buried in Mount Auburn.

The Fondness of the Romans for Purple.

Romans of rank, if they had one darling weakness, manifested it in their passion for purple. It was not merely because the dye of the Tyrian shell-fish contrasted well with the prevalent whiteness of classic garments, but because the purple hue was sacred to Cæsar, and a reflected glory of imperial dignity clung about those whose high station gave them the privilege of bordering their gowns with a stripe, more or less narrow, of the courtly color. Never did the envied scrap of red ribbon that decorates a Frenchman's button-hole occasion such proud delight, such angry heart-burnings, such eager longings, as did the concession to wear purple among the masters of the world.

Even the pearls of the Orient, brought by Alexandria keels to the harbor of Neapolis and Ostia, hardly brought a higher price, weight for weight, than the precious pigment for which the fishermen were ever seeking among the lone rocks where once stood the Venice of Syria. Alaric's greedy demand, the ransom of besieged Rome, coupled "all the purple" with gold, silver and slaves; for nothing, as the wily Goth well knew, sold better at every mart, from Gades to the Persian frontier. Sumptuary laws limited its use within such straight limits that had there not been the usual discrepancy between theory and practice, a very few netfuls of the valuable mollusk would have supplied emperors, consuls and senators with the little they required for their own adornment.

But an indictment then, as now, could not lie against a nation, and the knights and notables of the provinces vied with the aristocracy of Old Rome and New in staining hem and fringe, scarf and buskin, with the coveted tint. Yet the imperial purple was but a dusky dye, often ignominiously likened to bull's blood, and the whole of the colors employed by the ancients in staining textile fabrics were inferior in brilliancy and beauty to those with which we are now familiar.

HAVE the courage to cut the most agreeable acquaintance you have when you are convinced he lacks principle; a friend should bear with a friend's infirmities, but not with his vices.

Greedy Monarchs.

Frederick the Great, though he could dine on a cup of chocolate in war time, loved good eating and drinking, and undoubtedly hastened his death by refusing to conform in any way to proper rules of diet. "The king," wrote Mirabeau, who was in Berlin at the time, "eats every day of ten or twelve dishes at dinner, each very highly seasoned, besides at breakfast and supper, bread and butter covered with salted tongue and pepper." We are at the last scene. No wonder. A short time before a gentleman dined with Frederick, when an eel pie was brought to table, which he declared was so hot "that it looked as if it had been baked in hell." The king was immoderately fond of these eel pies peppered to excess. Every school-boy will remember the parallel of the English king who died of eating too many lampreys. King John, too, is said to have died of a surfeit of peaches and new ale. The verdict of modern epicures will probably be "Served him right."

There is a curious anecdote of Henry VIII. bearing on this subject. The king had been out hunting in the neighborhood of Windsor. His eagerness in the pursuit of the chase had carried him out of sight and hearing of his retinue. Night was falling; return to the castle that day was impossible, and close at hand lay the Abbey of Reading. Thither, accordingly, the king turned his steps. His habit was simple, and the good monks took him for one of the royal foresters, while Henry, for reasons of his own, did not care to deceive them. He was hospitably entertained, and the lord abbot looked on with an approving smile, at the hearty performance of his guest. At last he said, "Truly, I would give his grace, your master, the half of my revenues for so good an appetite." Three days passed; the abbot was suddenly arrested in the king's name, where a diet of bread and water was assigned him. The end of the story may be imagined. Before a month was over the abbot had recovered an excellent appetite for beef and beer. But the tale is obviously apocryphal. Even a Tudor could not have arrested a mitred abbot in this summary fashion. From the pictures of Henry VIII., we may safely infer that his appetite was not bad.

Descending to the Stuarts we find Henrietta Maria, at her first banquet in England, eating pheasant on a Friday, notwithstanding the signs and open remonstrances of her French confessor. Poor girl! she was scarcely seventeen, and the sea passage had probably given her an appetite. Her inestimable son, King Charles II., of glorious memory, delighted in eggs and ambergis, of which we may hope he partook moderately. His death was supposed by some to have been occasioned by poison administered in this his favorite dish. William III. both ate and drank more than was good for him. He loved to sit many hours at table; indeed, dinner was his chief recreation. Nothing must interfere with his enjoyment; the Princess Anne might look wistfully at that dish of young peas, but she looked in vain, for the king ate them all, and never even offered her a spoonful. She revenged herself by calling him Caliban."

Among other sovereigns we find the great Napoleon a voracious eater. Some one has attributed the loss of the battle of Leipsic to the effects of a shoulder of mutton stuffed with onions, with which the emperor literally gorged himself so as to become incapable of vigorous and clear-minded action. He ate very fast. The state banquets at the Tuilleries lasted about thirty-five minutes. On the other hand he was no lover of wine. In that melancholy voyage to St. Helena he offended the English officers by rising from table before drinking had fairly begun. "The general," one of these prisgs had the brutality to say in his hearing, "has evidently not studied manners in the school of Lord Chesterfield." Their idea of politeness—certainly not Lord Chesterfield's—was to drink on till you dropped under the table.

The founder of the greatness of Russia must unquestionably be added to the list of great men and great eaters. Macauley tells us how, when Peter the Great visited England, in the year 1698, the immense quantities of meat which he devoured, the pints of brandy which he swallowed, and which, it was said, he had carefully distilled with his own hands, were during some weeks popular topics of conversation. Great as was Peter, he might have found his peer in the Roman Emperor Maximin, (A. D. 235-238), who could eat in one day forty pounds of meat and drink six gallons of wine—unless the histori-

ans lie. There can be no doubt, however, that the Roman emperors numbered among them many a notable glutton. Heliogabalus loved to sup on the tongues of peacocks and nightingales; he fed his lions on pheasants and parrots. His majesty would also give a zest to the pleasures of the table by assembling companies of guests who were all fat or all lean, or all tall, or all short, or all bald, or all gouty. Capital fun, too—for the emperor. The truth of the story that Nero enriched his soups by dissolving diamonds in them may safely be left to chemists to decide. Of the first, the true Cæsar, of him who has been called the greatest character in history, it may be sufficient to quote the famous saying of Cato, "That of all those who had helped to . . . overthrow the republic, Cæsar was the only sober man." It is not the less that he loved the pleasures of the table, and was an affable and genial host. As a guest he probably gave the finest example of high breeding that has ever been known. The story is familiar as told by Suetonius. The dictator was dining out. Some rancid oil was served with the salad. Every one else made wry faces. Cæsar appeared not to perceive the mistake, and asked for another supply.

Training Canaries.

Canaries show a great aptitude for tricks, sometimes learning to do many amusing and difficult things, and also to sing tunes very well. They soon come to know their masters or mistresses, and will often follow them about. I "mind," as a Scotch girl would say, a little lassie who had a pet bird so tame that in pleasant weather she used every day to open the window and let it go out of the house, for it would always return at evening, tapping on the window-panes to be let in, if the sash happened to be closed. An English gentleman had a canary for several years which never was kept in a cage, and in summer was always flying out to the gate to meet its master, perching on his finger, nestling in his bosom, or best of all, clinging in his hair, where it was completely happy; at the same time only one other person in the house would it allow to touch it, resenting any attempt at familiarity with the fiercest anger. At last, however, this bold little fellow got bewildered in a sudden dense fog and was lost.

Canaries can live out of doors in our climate very well in summer, and sometimes join the families of wild birds; but their house-bred constitutions can hardly stand the cold of winter, and escaped birds probably all perish before spring. They are very affectionate little creatures, always prefer companions, and will make friends even with natural enemies. A fancier in London had a cat which, with her kittens, would eat out of the canaries' dish in the bird-room and never think of harming them, while the birds seemed to enjoy Tabby's society.

To tame birds and to train them to perform tricks are two very different things. Any one may do the first by constant, quiet kindness, endless attention and patience. Accustom the bird to your presence, and let it understand that whatever you do about it nothing is intended for its terror or harm. This learned, teaching it to perch on your finger, or come to your whistle or call, is only a matter of time and gentle patience. Some odd tricks may be taught them if they are "cute, for different birds differ very greatly in their ability to learn, as well as their natural talents and dispositions—but the astonishing exploits of some troupes of "performing birds" which are exhibiting about the country are all taught to them by a terribly cruel course of lessons, and you ought not to make your pet emulate these performances.

The Germans often teach young birds tunes and the songs of other birds; but the operation is a slow and tedious one, and the results not very satisfactory. It seems to me that our highest wish should be to perfect all that is natural to a canary, and not try to make him something else than he is, or was intended to be.

SOME twenty years ago, there was a large collection of Egyptian curiosities to be seen on Broadway, New York. They were collected by Mr. Abbott after twenty years of careful study and research. One of the finest specimens which had resisted the tooth of time for three thousand years, had escaped the perils of Egyptian and ocean travel, only to be dumped on the sidewalk by a New York carman and broken to fragments.

Self Improvement.

I noticed a paragraph in a local paper lately, stating that a young man had qualified himself to pass a nautical examination as master by employing his spare hours at sea in study, which ought to suggest to young men generally, and especially to young men of the working class, the possibility of acquiring a great amount of useful knowledge by judicious employment of their leisure hours, and that without depriving themselves of any healthful recreation. It is a well-known fact that many of the great men who have distinguished themselves during the present century, more particularly in connection with important discoveries and inventions, have been working men who have risen by their own efforts; who have added to their stock of useful knowledge, improved and trained their minds by employing their leisure hours in reading and study, often under very unfavorable and discouraging circumstances. It is astonishing how much practical knowledge a man will acquire by judicious and systematic disposal of his leisure hours, and that without encroaching upon time to be devoted to healthful recreation. One hour an evening spent in reading or study on some given practical subject, will suffice to lay up in the storehouse of memory in the course of a year a great variety of important and useful facts that will be found valuable in after life. In order to prove this young men have simply to make themselves acquainted with the early history of such men as Stephenson, Hackworth and others. The lesson of their lives and of the lives of others whose names we need not specify, is: first, diligent improvement of their leisure hours and minutes; second, devotion to a favorite subject or study; third, having a definite and practical aim; fourth, adoption of a systematic course of reading and study; fifth, desire and determination to succeed.

Such men, being sustained in health of body and mind, could not fail to succeed. What was possible in their case in the nineteenth century is more possible in the case of young men of the present day, if they go to work with the same thoughtful, careful determination, and avail themselves of the superior advantages presented by the literary and educational institutions and sources of knowledge which abound almost everywhere to a greater or less extent. The fact is, there is no excuse for working men of any class being always "hewers of wood and drawers of water," being simply machines in the hands of employers. Making use of the intelligence God has given them, availing themselves of the facilities at their disposal for acquiring knowledge, and putting knowledge so acquired into practical use, they can improve their own present position; for intelligent employers appreciate intelligent workmen, and they can fit themselves for occupying positions of honor and usefulness in society. The lesson taught by the lives of men whose lives are connected with the discoveries and inventions of genius, ought to stimulate young men of the present day to emulate their examples, to follow in their footsteps so far as they did right, and to be animated by a laudable ambition to excel in the sphere of duty and labor which they are called upon to fill.

T. W. D.

Manufacture of Marbles.

In Germany marble making is a manufacture of some importance. The refuse of agate quarries and mills are used for those small stone balls which possess such a fascination for boys. The stone is broken into small cubes by blows of a light hammer. These small blocks of stone are thrown by the shovelful into the hopper of a small mill formed of a bed-stone, having its surface grooved with concentric furrows. Above this is the "runner," which is of some hard wood, having a level face on its lower surface. The upper block is made to revolve rapidly, water being delivered upon the grooves of the bed-stone, where the marbles are being rounded. It takes about fifteen minutes to finish a half bushel of completed marbles. One mill turns out about one hundred and sixty thousand per week.

Cultivate consideration for the feelings of other people if you would not have your own injured. Those who complain most of ill-usage are those who abuse themselves and others the oftenest.

The Humming Bird.

The appearance of the humming bird is entirely unlike that of any other creature. We are admiring some brilliant and beautiful flower, when suddenly appears before us a small, dark object, suspended, as it were, between four short black threads, meeting each other in a cross. For an instant it shows in front of the flower; again another instant, and, emitting a momentary flash of emerald and sapphire light, it is vanishing, lessening in the distance as it shoots away to a speck that the eye cannot take note of. Indeed, the little atom of life comes and goes with the rapidity of a gnat or a dragon fly. Audubon tells us that the small size of the ruby humming bird renders it impossible to follow its flight with the eye for more than fifty yards. A person standing in the garden will hear the humming of their wings, and see the little birds themselves within a few feet of him at one moment; the next, they will be out of sight and hearing. Gould tells us that the tiny creature lives in the air, like a gnat or a butterfly. It often mounts up the towering trees, and then shoots off like a little meteor at a right angle. At other times it will gently buzz among the flowers upon the ground. The next moment it is hovering over a diminutive weed, and then it is seen at a distance of forty yards, whither it has vanished with the quickness of thought. Professor Wallace has devoted a considerable period to the minute study of the habits of the humming-bird, and has come to the conclusion that it is a tropical swift, or swallow, modified in a long course of many generations from its original ancestor, but retaining its characteristics of an essentially insect feeder. It is true that down to the time of Buffon it was believed that the humming-bird lived solely on the nectar of flowers, but since then it has been ascertained beyond all possibility of doubt that it feeds largely, and in some cases wholly, on insects. The birds have been seen in the winter picking dead flies out of the webs of spiders. Bullock, in Mexico, and Waterton, in New Guinea, saw them catch small butterflies, and found their stomachs filled with insects. Those who have watched their habits have observed them sitting like fly-catchers on a twig—darting off, and returning. Mr. Gross, one of our most accomplished naturalists, tells us that all the humming-birds have, more or less, a habit when in flight of pausing and quickly turning in the air. "That the object of these quick turns," he adds, "is the capture of insects I am sure, having watched one thus engaged pretty close to me. I observed it carefully, and distinctly saw the minute flies which it pursued and caught, and heard repeated the snapping of its beak. My presence scarcely disturbed it, if at all." Moreover, it seems that however long may be the bill of the adult humming-bird, the young bird has a little, short, broad, triangular bill, like a swift. It is evident, in short, that the swift is, to use Mr. Wallace's words, a pure aerial insect hunter, and that its short, broad bill and wide gape are essential to its mode of life. The humming birds on the other hand are floral insect hunters. They seek their prey among the gorgeous masses of creepers that hang from bough to bough in the trackless forests of the tropics. They dart in and out between bud and leaf, between blossom and stalk, as the dragon-fly flits among the sedge and burrush. But the fiction that they subsist on honey and nectar alone must be banished, like other pretty fables, to the region of myth. The humming-bird is as ravenous a creature in its way as the robin. No doubt a robin in winter, when the ground is hard with frost, will not despise bread crumbs; but his real delight is in a caterpillar, or a fat earth-worm, or a little plump slug. Similarly, the exquisite, dainty humming-bird is a carnivorous being.

The Gulf Stream.

There is a river in the ocean. In severest droughts it does not fail; in mightiest floods it does not overflow its banks, and its bottom is of cold water while its own current is warm. The Gulf of Mexico is its fountain; its mouth the Arctic Seas. There is in the world no other so majestic a flow of water as this Gulf stream. Its tide is more rapid than the Mississippi or the Amazon, and its volume immensely greater. Its waters, as far out as the Carolina coasts, are of an indigo blue. The line of junction between this stream and the sea may be traced with the eye.

The Sandwich Islands.

Hawaii is the largest of the Sandwich Islands. It is ninety-seven miles long and seventy-eight broad, rising gradually into three conical summits, the highest one being eighteen thousand feet above the level of the sea, and affords a landmark which is seen a great distance off. It was here that the daring explorer, Captain Cook, was murdered by the natives.

The situation of this group of islands in the vast Pacific, affords an important stopping place on the unstable highway to China and the north-west coast of America. This island is abundantly fertile in the interior, yielding yams, plantains, sweet potatoes, sugar-canes, and other productions natural to that warm climate and rich soil. The shores are wild and broken with beetling cliffs and black, volcanic precipitous rocks. The numerous habitations of the natives are shaded and sheltered by clumps of cocoa-nut and bread-fruit trees. Great varieties of gardens and groves sweep up the mountains' sides, bounded in by protecting forests, beyond which naked and craggy rocks rear their snow-tipped summits.

The islanders are not unprepossessing in appearance. They are tall and well made, of a copper-color complexion, and exhibit great strength and activity. The women are sometimes found with regular and handsome features. They are not noted for elaborateness of dress, but the warmth of the climate, scanty manufactures and early education excuses their meagre garb. Their dancing is performed with graceful, easy movements, keeping time to their singing.

Woahoo is, perhaps, the most beautiful island of the group. Forty-six miles in length and twenty-three broad; it has a volcanic ridge extending through the center, with lofty peaks towering above the lower undulating hills and fertile plains, where the natives' huts, nestled amid groves of luxuriant palms, make up one of the most lovely pictures of life in the Tropics.

We find an interesting description of a Sandwich Islander's funeral. When his countrymen had dug the grave, they deposited their companion's body in it, with provisions placed here and there about the corpse to sustain him on his journey to the land of spirits. Then covering the body with sand and flints, they kneeled along the grave in double rows facing the East, while a sort of officiating priest sprinkled them with water, reciting a kind of prayer to which the others made responses. They then arose and silently walked away from the grave without once looking back.

When first discovered, the historian says, the islanders evinced great superiority over other savages of the Pacific Isles, and it is generally believed that the massacre of Captain Cook was not from clear ferocity, but owing to sudden exasperation and fear at the unexpected seizure of their chief, whose life they believed to be in jeopardy.

Coral Brackets.

Some fair housekeepers, who are chafing under their pecuniary restraints, and look with envy every time they go into Mrs. L.'s elegant parlor, and return home to their own scantily-furnished but comfortable little rooms, saying, with a sigh of regret, "If I only were rich, how nicely I could fix up our parlor," can, if they put a little physical energy, seasoned with good taste, into use, make their parlor look as inviting as Mrs. L.'s. Let me suggest one out of many other ways of doing so. Take some large wire, and form, by twisting it, a bracket, using one of wood as your guide, or else design your own pattern; get from the grocer's, if you should not happen to have any, the broken stems of raisins; tie these on the wire at irregular intervals. Take three sticks of red sealing-wax, put them in an old tin-cup, add to them a half-pound of beeswax and a quarter of a pound of rosin; set the cup on the fire, and when the ingredients have melted and mixed well together, take a small paint brush and paint the wire frame, allowing it to cool, then renewing the process of painting until the entire frame is covered with a thick coating of the mixture; put it in some cool place, and dry, until it becomes perfectly hard. You will not find it a troublesome or expensive way of adorning your room, and you will have the satisfaction, which your much-envied and wealthier neighbor has not, of feeling that it is the work of your own hands, which makes your home attractive

"The Rainbow in the Bubble."

Cheerfulness is to the mind what sunshine is to the earth—its rejuvenating force. The cheerful people are always young, however gray their locks, dim their vision, or wrinkled their faces. Nay, cheerfulness will keep gray hair and wrinkles at bay more effectually than any cosmetic or magic wash. It is a talisman which attracts affection and regard to those who wear it. The cheerful person is everywhere welcome, and nowhere out of place. She lights up the darkest day, and has the same genial and stimulating effect as the sunbeam; she makes the best of every thing—even misfortune seen through her spectacles does not look so ugly; she anticipates happiness ahead, and is sure that trouble will get detained on the way; she sees the silver lining on every cloud, and the first rift; where another murmurs and doubts, she is full of thanksgiving and hope. The small discomforts of life does not fret her as many another. She is the best traveler the world over—heeds the jolts on the road only to laugh at them; breakdowns and detentions are only so many novel experiences to her; and we doubt if even a highwayman could rob her of the habit of looking at the bright side of every thing. She does not make faces over a poor dinner or a hard bed, but resigns herself to inconveniences so complacently that one might be deceived into thinking her accustomed to them. That she is a most companionable personage, the comfort of her presence attests. Her example is infectious, and we find ourselves groping our way out of the slough of despond by the light of her countenance. If "good nature is stronger than tomahawks," as the sage tells us, then cheerfulness is its twin sister. With many of us, perhaps, cheerfulness is no more a virtue for which we are responsible than a quick ear for music would be, than a Grecian profile, or a fine head of hair. It is bred in the bone with a few of us, just as a talent for carpentry, for sculpturing, or versifying is; and as it is reckoned a disgrace to spell badly, but no virtue to spell well, so the talent for cheerfulness, being our birthright, is not so much set down to our credit, but so much subtracted therefrom if we do not develop it into a genius. But it is none the less a sweetener of existence, and such a charming thing to meet with, in man or woman, that we are apt to treat the owner as if it were a plant of his own selecting and sowing, since we do not stop to inquire how much is indigenous or how much exotic; for though the effect is the same upon the spectator, yet the mead belongs to those who, having no natural inclination toward cheerfulness, have yet succeeded in grafting it upon the barren stock of a despondent disposition, who have been obliged to fight bravely for the sunshine they spend lavishly. We do not question but it is a more certain recipe against the encroachments of disease than the specifics of medical science. By examination we should doubtless find that the few who reach the nineties are those who cultivate a sanguine temper; who wear life like a garland rather than a yoke; who do not wring their hands when their stocks depreciate, but are certain they will rise to-morrow; who, when the ship is leaking are on the outlook for a sail; who, when their case is desperate, do not make it worse by desperation—people who can say,

"If life an empty bubble be,
How sad are those who never see
The rainbow in the bubble!"

To Mould a Wax Vase.

Melt one-half pound best cake wax in an earthen dish placed on top of a stove; do not allow the wax to boil; add a teaspoonful of the balsam of fir and one tube full paint (silver white). When well melted strain through a thin cloth into a clean earthen dish; keep the wax melted, but not hot, until you place your plaster-of-paris mold in water; allow it to stand a few moments, then lift out and shake off the drops. Into the largest half of the mold pour your melted wax quickly; pour it as full as you can without spilling, then place on the other half of the mold, and hold the two parts firmly together while you turn the mold over and over rapidly; this is done so that the wax may pass over the entire inner surface of the mold; in about five minutes lay the mold in water and the wax vase may be easily taken out; the edges may be smoothed by scraping with a penknife; now hold the vase near the fire, and cut a circle out of the top. These vases are beautiful filled with wax flowers, or autumn leaves made in wax.

BUTTERFLY LIFE,

WITH

Mode of Capture and Preservation.

Will he catch it? Does that thoughtless little imp know what a creature of beauty he is trying to catch?

favor of the boy; nearer and nearer he came, up went his cap at the swallow-tail. It was so well aimed that the insulted butterfly indignantly swept over a neighboring hill, leaving the young hunter in a rage at the useless expenditure of so much toil. To make his defeat more ignominious, the cap had stuck in a thorn bush, from which the little fellow did not



THE BUTTERFLY HUNTER.

Well done, bright fairy of the spring! that last wave of thy sun-tinted wings has carried thee over that blooming hill now far away from the baffled, puffing, red-cheeked school-boy. Such were our reflections as we once watched "my noble American boy" in hot pursuit of a "swallow-tail" (*papilio asterias*) butterfly. At first it seemed two to one in

recover it without sundry pricks and provoking scratches. We rejoiced in the escape of the insect, knowing well that its hunter did not wish to examine the wonders of that tiny "thing of life," but to gratify his bump of destructiveness. However, I think few will deny that man enjoys a vested right to make use of any of the inferior animals or insects,

even to the taking of their life, if the so doing ministers to his own instruction, well-being, or pleasure, and practically every one assumes the right in one way or another. Game animals are shot down (and they assuredly do feel pain), not as necessities of life, but, confessedly, as luxuries. Fish are hooked, crabs, lobsters, shrimps, perish by thousands—victims to our fancies. Unscrupulously we destroy every insect whose presence displeases us, harmless as they may be to our own persons. The aphides on our flowers, the moths in our furs, the “beetles” in our kitchens, all die by thousands at our pleasure. Then, if all this be right, I think we may justify the appropriation of a little butterfly life to ourselves; and the mental feast that their after-death beauty affords us at least furnish an equal excuse for their sacrifice with any that can be urged in favor of any animal slaughter, just to tickle the palate or minister to our grosser appetites! To this query there can be, we think, but one fair answer, so we may face the question that has been asked by a correspondent: “How to kill a butterfly?” The fly-catcher will require a net, pocket-sizes, and a few entomological pins.

For a description of the net used the reader is referred to that in the hand of the rather comical looking party in the accompanying illustration. This old gentleman is evidently an experienced hunter. See how cautiously he approaches the wary insect. Repeated failures have taught him that it is almost useless to attempt to catch the gay creature when on the wing. He therefore waits for it to settle on some flower, and while it sips the honeyed sweets, he, with a quick motion, captures the coveted prize in his net; which may be made at home if desired, with a bit of strong wire, a piece of gauze, and a stick about four foot long.

Pasteboard boxes will answer; but a layer of cork in the bottom, about one-eighth of an inch in thickness, will greatly improve them for the purpose designed.

The quickest mode of dispatch is by a *quick nip between the finger and thumb applied just under the wings*, causing instantaneous death; and this can be done through the net, when the enclosed butterfly shuts his wings, as he usually does when the gauze wraps round him. Now take one of your thin pins and pass it through the thorax of the butterfly, while open or shut, and fasten the pin to the cork lining of your box; spread the wings and pin them in place also. Many prefer to use chloroform, whose pain quelling properties are so well known as regards the human constitution. This potent agent is applied to the head of the insect with a small camel's hair brush and proves effectual almost instantly. As soon as possible after reaching home the butterflies should be “set.” Take out all the pins, excepting that through the middle of the thorax—remove this pin whereon is the butterfly and place it in your cabinet, or where it will be safe from injury. A great point in “setting” is to take care that all the wings are symmetrically arranged. Let the *antennæ* also be carefully preserved, as on their integrity much of the specimen's value depends. In a few seasons a fine assortment of these most beautiful of all insects may be secured to be a source of amusement to all who have an opportunity to see them.

W. S. Coleman says that: “In the time of the great Roy, in such mean repute was the science of entomology held, mainly, I believe, on account of the small size of its objects, that an action at law was brought to set aside the will of an estimable woman, Lady Glanville, on the ground of *insanity*—the only symptom of which that they could bring forward was her *fondness for collecting insects*.”

“But this was some two centuries ago, and matters have greatly mended for the entomologist since then. Now he may collect butterflies, or other flies, as he pleases, without bringing down a commission ‘*de lunatico*’ on his head; but still the goodness of his heart is sometimes called in question, and he has to encounter the equally obnoxious charge of *cruelty* to the objects of his admiration—that, too, from intelligent and worthy friends, whose good opinion he would most unwillingly forfeit.

“So I will briefly try to act as apologist for the ‘brotherhood of the net,’ myself included.

In the first place, I will state roundly my sincere belief that *insects cannot feel pain*. This is no special pleading, or ‘making the wish the father of the thought,’ but a conviction founded on an ample mass of evidence, on my own observations and experiments, and strengthened by analogical reasoning.

“Insects, when mutilated in a way that would cause excessive pain and speedy death to vertebrate animals, afterwards perform all the functions of life—eating, drinking, etc., with the same evident *gusto* and power of enjoyment as before. Plenty of striking instances of this are on record; and, as an example, I have seen a wasp that had been snipped in two, afterwards regale himself with avidity upon some red syrup, which, as he imbibed, gathered into a large ruby bead just behind the wings (where the stomach should have been); but really the creature's pleasure seemed to be only augmented by the change in his anatomy, because he could drink ten times his ordinary fill of sweets, without, of course, getting any the fuller. I could almost fancy a scientific epicure envying the insect his ever fresh appetite and gastronomic qualities.

“This killing business is the one shadow on the otherwise sunshiny picture of collecting butterflies, which we would gladly leave out were it possible to preserve a butterfly's beauty alive; but this cannot be done, and yet we have made up our minds to possess that beauty—to collect butterflies; in short, there is but one way for it, and so a butterfly's pleasure must be shortened for a few hours, or may be days, to add to our pleasure and instruction, perhaps for years after.”

The term “butterfly” seems to be unsuitable for an insect which has a taste far too refined for butter. The name was, it is thought, given to the insect by our Saxon ancestors, because it appeared in the butter-making season. Be it so; many a finer name has had a lower origin.

Each butterfly may be said to have four epochs in its life—the egg state, the caterpillar, the chrysalis, and the fly.

The eggs of the butterflies, in common with those of insects in general, are capable of resisting not only vicissitudes but extremes of temperature that would surely be destructive of life in most other forms. The severest cold of an American winter will not kill the tender butterfly eggs, whose small internal spark of vitality is enough to keep them from freezing. For example, they have been placed in an artificial freezing mixture, which brought down the thermometer to 22° below zero—a deadly chill—and yet they survived with apparent impunity and afterwards lived to hatch duly.

We have used the term chrysalis; what does it mean? Of course all our readers know that it is the case or cradle in which the caterpillar takes the butterfly form.

“Only a bit of dust,
Astir in the heavy mold;
And yet poor things,
As low as I,
Do put on wings
And one day fly,
I'm told,
Changing their earth-born rust
To dainty gold.”

The word is derived from a Greek term, signifying *golden*, and was originally applied to the most richly-tinted envelopes of this insect. Sometimes the name *aurelia* (aurum, gold) is used to denote these bright forms. Chrysalis is properly applied to the butterflies only; the word *pupa* (a little thing) being the more correct designation for the third state of other insects.

Linnaeus saw some resemblance between the creature thus tightly packed up in its foldings and babies banded up in close mummy-like wrappers. He therefore employed the term *pupa* to represent this stage of insect life. Let the reader by all means look for some chrysalides, and carefully examine them. He will sometimes see through the fine covering the body, legs and wings of the insect, most marvellously packed up in its case. Let him take the first opportunity then of witnessing the operation of a butterfly “coming out” into the world. How is it effected? The cradle cracks, the wrappers are torn and the fly extricates itself, standing like a thing most forlorn. No mother is near to introduce the stranger; not a single friend to give help—the young butterfly is indeed received coldly by the world.

Her very wings are puny things, and her limbs look as if rheumatic. But she has a cheerful heart, soon gets over the first amazement, and one of her earliest operations is to attend to her beauty. Suppose the wings should not open nicely; what if there should be a crease in that important part of her wardrobe! her life would be wretched then; the gentlemen would not look at her, and no female of her race would condescend to sip from the same flower. So she takes great pains with her toilet, and in about an hour all is generally right—the gorgeous wings become fully expanded by the sun's heat, and the beauty sails exulting in the full luxury of life.

"Behold, ye pilgrims of this earth, behold!

See all, but man, with unearned pleasure gay;

See her bright robes the butterfly unfold,

Broke from her wintry tomb in time of May.

What youthful bride can equal her array?

Who can with her for easy pleasure vie?

From mead to mead with gentle wing to stray,

From flower to flower on balmy gales to fly,

Is all she hath to do beneath the radiant sky."

Have our friends ever seen a butterfly in the winter? The very question may seem absurd. How can the symbol of flowery summer live amid the snows of December? The surprise is natural; but some butterflies do live through the season of frost and tempest; in other words, they hibernate—sleep comes on them in some sheltered nook as winter approaches, and lasts with a few breaks till the return of the spring. Sometimes a mild day, even in January, will rouse the sleepers and they come out for a short airing, to the astonishment of the schoolboy or the young lady out for a walk.

A lady once tamed one of these hibernators which lived in the house of its preserver until spring. The lady, who had risen for the first time from a bed of sickness, went into an adjoining room where she saw a gay and beautiful butterfly in the window. Astonished at finding this creature of flowers and sunshine in so uncongenial a situation she watched its movements. As the sun came out, for a bright, brief space, it fluttered joyously about the window, and imparted to the sick room an air of cheerfulness and hope. Toward evening, however, the tiny creature drooped its wings; the lady then placed it in a glass tumbler on the mantelpiece. During the night a hard frost came on and the room was in consequence very cold. In the morning the butterfly lay in the bottom of the tumbler apparently dead. The invalid, grieved that her gentle companion of the previous day should so perish, made some effort to restore its fragile existence. She put it on her warm hand, and breathing upon it, perceived it give signs of returning animation. She then once more placed it in its glass house on the rug before the fire. Soon the elegant little insect spread out its many-colored wings and flew to the window, where the sun was shining brightly. By-and-bye the sun retired, and the window panes getting cold, the creature sank down on the carpet again, apparently lifeless. The same means were used to restore animation and with the same success. This alternation of activity and torpor went on for many days, till at last the grateful little thing became quite tame, and seemed to be acquainted with its benefactress. When she went to the window and held out her finger, it would of its own accord alight upon it; sometimes it would settle for an hour at a time upon her hand or neck when she was reading or writing. Its food consisted of honey; a drop of which the lady would put upon her hand, when the butterfly would uncurl its sucker and gradually sip it up; then it usually sipped up a drop of water in the same way. The feeding took place once in three or four days. It lived in this way all winter. As it approached the end of its career its wings became transparent, its spirits dejected, and at last, one morning in May, it was found quite dead.

The butterflies are to insects what the humming birds are to the feathered tribes, the analogy holding good not only in their brilliant colors and manner of flight, but also in the nature of their nutriment, the honeyed juices of the flowers. The happy life of the butterfly, flitting from flower to flower, from one sensual delight to another, resembles that of professed pleasure seekers, the "butterflies of fashion," whose only object is enjoyment whose existence is a blank, and whose lives add nothing to the progress of humanity; they are mere

consumers of other men's labors; a whole generation dies and is deservedly forgotten.

From the transformations of the butterfly, natural theology has drawn one of the most simple, beautiful, and convincing arguments for an existence beyond the grave. We see the airy, brilliant, perfect insect, derived from the crawling, disgusting and voracious caterpillar—a worm transformed into a sylph—a change that no one, unless it had been actually seen, would believe possible. Reasoning from analogy, this emblem of the butterfly has seemed typical of the change of the corruptible into the incorruptible after death; the grovelling human desires are represented by the creeping caterpillar; in the chrysalis we have presented to us the darkness and silence of the tomb; and in the butterfly we recognize a new-born existence of the spirit, freed from the imperfections of the earthly and finite, and rejoicing in the pleasures of immortality.

The Tree of Saturn.

To make this beautiful and easy experiment, dissolve 30 grammes of the sugar of lead in 1,000 grammes of water, and place the solution in a suitable vessel—best of a globular form, such as those used for goldfish. Suspend from the stopper, or from a cross-thread below the bladder, with which the top may also be closed, a small piece of zinc, to which are attached about half a dozen brass wires, diverging like the branches of a tree. After this zinc and brass wire have been allowed to remain quietly suspended in the liquid for a short time, the brass wires will be found to be covered with brilliant crystalline spangles of metallic lead, which will daily become larger and more numerous. The old alchemists who discovered this experiment did not understand it at all, and supposed that the brass of the wire changed to lead; but the true action is that the metal in solution is exchanged for zinc and brass. The acid of the acetate of lead unites with the brass and zinc, forming soluble salts, while the lead, which was made soluble by the acid, and cannot, therefore, be any longer held in solution, is, therefore, deposited in a metallic condition, and this so slowly and gradually that the particles have time to obey their molecular attractions and repulsions, and so the crystalline form is obtained. This form is nothing more than an outward visible manifestation of inward invisible forces governing the atoms or molecules of the crystallizing substance.

The shape of the vessel and wires may be various. The forms of letters or other figures may be given to the brass wire, and, in any case, it will soon be covered with the brilliant spangles; care must, however, be taken not to move the vessel carelessly after the crystallization has commenced, as the crystals are very fragile and easily detached, when all will sink to the bottom. It is best to place the vessel, before any crystals are formed, at once in the position in which it is intended to remain for exhibition.

An Elephant as Nurse.

A large elephant showed, by constant flagellation of his body, that he was much annoyed by his tiny persecutors, the mosquitoes, and just at that time the keeper brought a little naked thing, as round as a ball, which in India I believe they call a child, laid it down before the animal with two words in Hindoostanee, "Watch it," and then walked away into the town. The elephant immediately broke off the larger part of the bough so as to make a smaller and more convenient whisk, and directed its whole attention to the child, gently fanning the little lump of India-ink, and driving away every mosquito which came near it; this he continued for upward of two hours, regardless of himself, until the keeper returned. It was a beautiful sight causing much reflection. Here was a monster, whose weight exceeded that of the infant by at least ten thousand times, acknowledging that the image of his maker, even in the lowest degree of perfection, was divine; silently proving the truth of the sacred announcement that God had "given to man dominion over the beast of the field." And here, too, was a brute animal setting an example of devotion and self-denial that but few Christians, none indeed but a mother, could have practiced.

The Chinese printed with wooden types a century before Gutenberg's time.

Servants in the Middle Ages;

Difficulties with servants are not confined to this generation. The following is translated from a chronicle of life in Suabia as far back as the middle ages. "Listen," says the Suabian matron to a new domestic she is about to employ, "they say of me the whole country over that I conduct myself badly with my servants, that I am very violent, and that in the space of five years I have changed twenty times. But they say not one word of the provocation I have received." She goes on to enumerate some of the annoyances she has endured. They so exactly resemble the trials of a modern housekeeper that we can see at once, so far as this source of domestic unhappiness goes, we are no worse off than our ancestors. "The first was dirty. On Sundays and fete days she made herself as fine as a peacock, but on work-days she was never covered with anything else than dirt and rags. The second was forgetful, inattentive, and disquieted herself very little with my work. She never thought of anything, and I was obliged to repeat to her every day what she had to do. She broke more dishes and plates than there are days in the year." The third was the personification of laziness. I thought that I should never live to see the termination of any work she commenced. When she wiped a bottle the moss would have had time to grow on the bottom of it. The fourth was a glutton. The cream, the butter, and the meat were less safe near her than in the proximity of a cat. The fifth was mean and careless, and never contented with anything, and always complaining and morose. The sixth left the spoons in the dish-water, whence they were finally thrown to the pigs. She cooked me an omelet until it was like charcoal, and meanwhile, such was her obstinacy and ignorance, that she maintained to me that it was as yellow as gold, and could not be eaten in any other condition. I am forced to interrupt myself, for which I am sorry. During three hours I should be able to entertain thee with the characters of these girls."

An Aged Tortoise.

In the hall of the Episcopal Palace of Peterborough there is preserved under a glass the shell of a large tortoise, which appears to have been a double "centenarian." Beside the shell, there lies the following description of this remarkable animal: "The Peterborough Tortoise." "It is well ascertained that this tortoise must have lived two hundred and twenty years. Bishop Parsons had remembered it for more than sixty years, and had not recognized in it any visible change. Bishop Marsh (in whose time it died) was the seventh who had worn the mitre during its sojourn here. Its shell was perforated (as is seen) in order to attach it to a tree, to keep it from, or rather to limit its ravages, among the strawberries of which it was excessively fond. It ate all kinds of fruit and sometimes a pint of gooseberries at a time, but it made the greatest havoc among the strawberries. It knew the gardeners well (of whom it had seen many), and would always keep near them when they were gathering fruit, etc. It could bear almost any weight; sometimes as much as eighteen stone was laid upon its back. About October it used to bury itself, in a particular spot of the garden, at the depth of one or two feet, according to the severity of the approaching season, where it would remain without food until the following April, when it would again emerge from its hiding-place.

"Palace, Peterborough, March, 1842.

"The Bishops during whose time it lived were:

1. John Thomas, 1747-1757.
2. Richard Terrick, 1757.
3. Robert Lamb, 1764.
4. John Hinchcliffe, 1769.
5. Spencer Madan, 1794.
6. John Parsons, 1813.
7. Herbert Marsh, 1819-1839.

How a Fortune was Made.

In 1823, Talma, having only appeared in tragedy since 1796, consented to give his support to Mlle. Mars in one of Cassinair Delavigne's comedies. The announcement created a wonderful sensation—the best actor and the best actress in France to appear together. One morning about a week previous to the time of the announced ap-

pearance, while Mlle. Mars was in her private apartment, a manufacturer of Lyons asked for an audience. On entering, he spread out before the actress a shimmering fold of costly yellow velvet. "Will you deign to accept this, and make my fortune?" said the visitor. Explanations followed, and it was understood to be purely a business affair. The sagacious manufacturer knew very well that the superb woman before him set the fashion in female dress before all Paris. Yellow velvet was his specialty, but nobody wore it; and yet he was assured that it would be all the rage if once seen upon the queen of the stage. Mlle. Mars did not know. The color was very trying; she had dresses enough; but at length the pleading of the manufacturer overcame her scruples, and in the goodness of her heart took the velvet and handed it over to her dressmaker, with the instructions for making it up. The eventful evening arrived, and Mlle. Mars was arrayed in her robe of yellow velvet. On beholding the reflection of herself in her dressing-room mirror her heart gave way. "It is too ridiculous!" she cried, almost shedding tears of vexation. "I look like an awfully exaggerated canary bird. Really, I can not appear. Tell the manager he must postpone the play, or, at least, wait for me." Talma heard the words, and hurried from his dressing-room. "Is that all?" he said, when he had surveyed the queen and heard her story. "Upon my word, you never looked better in your life. The effect is superb. I am charmed with it." And the play went on. In less than two weeks thereafter the saloons of Paris were literally golden with yellow velvet. A lady could not be in the fashion in anything else. Years after the wealthiest manufacturer of Lyons gave a grand fete in honor of Mlle. Mars, entertaining her sumptuously. The festival was held in a spacious and superb country house on the banks of the Saone, and the fortune upon which the estate had been reared had grown up from yellow velvet.

How Pins are Made.

The pin machine is one of the nearest approaches that machines have made to the dexterity of the human hand. A small machine, about the size of a lady's sewing machine, only stronger, stands before you. On the back side a light belt descends from a long shaft at the ceiling that drives all the machines, ranging in rows on the floor. On the left side of our machine on a peg hangs a small reel of wire, that has been straightened by running through a compound system of small rollers.

This wire descends and the end of it enters the machine. This is the food consumed by this snappish, voracious little dwarf. It pulls it in and bites it off by inches incessantly, one hundred and forty bites a minute. Just as he seizes each bite a saucy little hammer, with a concave face, hits the end of the wire three taps and "upsets" it to a head, while he grips it in a counter-sunk hole between his teeth. With an outward turn of his tongue he then lays the pin sideways in a little groove across the rim of a small wheel that slowly revolves just under his nose. By the external pressure of a stationary hoop these pins roll into their places, as they are carried under two series of small files, three in each.

These files grow smaller toward the end of the series. They lie at a slight inclination on the points of the pins, and a series of cams, levers and springs are made to play "like lightning." Thus the pins are pointed and dropped in a little shower into a box. Twenty-eight pounds of pins is a day's work for one of these jerking little automatons. Forty machines make five hundred and sixty pounds daily. Two very intelligent machines reject every crooked pin, even a slight irregularity of form being detected.

Another automaton assorts half a dozen lengths in as many different boxes, all at once, and unerringly, when a careless operation has mixed the boxes from various machines. Lastly, a perfect genius of a machine hangs the pins by the heads in an inclined platform, through as many "slots" as there are pins on the papers. Under them runs the strip of paper. A hand-like part of the machine catches one form of each of the slots as it falls, and by one movement sticks them through two corrugated ridges in the paper, from which they are to be picked by the taper fingers in boudoirs, and all sorts of human fingers, in all sorts of human circumstances.

Pulpit Anecdotes.

Dr. Guthrie, the celebrated Scotch minister, has left behind him a pleasant autobiography. It was written in the decline of his life, and yet has the freshness of superabundant animal spirits. He tells two capital stories, which illustrate ecclesiastical life in Scotland and the quiet humor of Scotchmen. One is of Dr. Erskine, a great preacher in his day:

"Dr. Erskine was remarkable for his simplicity of manner and gentle temper. He returned so often from the pulpit minus his pocket-handkerchief, and could tell so little how or where it was lost, that Mrs. Erskine at last began to suspect that the handkerchiefs were stolen as he ascended the pulpit stairs by some of the old wives who lined it. So, both to balk and detect the culprit, she sewed a corner of a handkerchief to one of the pockets of his coat-tails. Half way up the stairs the good doctor felt a tug, whereupon he turned round to the old woman who had the guilty hand to say, with great calmness and simplicity: 'No the day, honest woman, no the day; Mrs. Erskine has sewed it in.'"

Another is of Dr. Guthrie's experience in examining a witness in a church trial, who did not wish to tell all he knew. The case was that of a minister charged with drunkenness.

Besides other proofs of drunkenness, having drawn this out of a witness, that the minister, on one occasion, as he lolled over the side of the pulpit—being, in fact, unable to stand upright—said that he loved his people so much that he would carry them all to heaven on his back. I asked him, "Now, John, when you heard him say so, what impression did so strange a speech make on you?"

Others, to the same question, as unwilling witnesses as John, had already said that though they would not say he was drunk at the time, they certainly thought so.

But John showed himself equal to the occasion. "Weel," he replied, "Maister Guthrie, I'll just tell you what I thought. There was a great fat wife, you see, sitting in the seat before me, and, thinks I, my lad, if you set off to the Kingdom of Heaven with that wife on your back, my certie, you'll no be back for the rest o' us in a hurry?"

Remarkable Longevity.

Tradition says that Alexander the Great took from Porus, an Indian king, a monster elephant. These animals were then, as now, held in the highest esteem in that country. That particular elephant fought so bravely for his master that the admiration of the conqueror was excited in his favor. He ordered him to be set free, and allowed to range at pleasure—first naming him Ajax, and placing a medal securely to his neck, bearing this inscription: "Alexander, son of Jupiter, dedicated Ajax to the sun." Three hundred and fifty-four years after, the old fellow was rediscovered, and probably in good condition, as nothing was recorded to the contrary. Therefore it is probable that elephants may live several centuries before the machinery of life gives out. Cuvier, the great French naturalist, saw no reason why whales should not reach a thousand years. An eagle died at Vienna, that was known to be one hundred and four years old. Ravens have been active at one hundred years. A skeleton of a swan is in possession of an English gentleman, that died when two hundred and ninety years of age. Tortoises have been repeatedly found with dates cut into their shells by ancient hunters, showing they were over one hundred, and yet were crawling on vigorously with new markings into a second century.

Elephants at Sea.

The hoisting into the air, and lowering elephants into the hold of a ship, is not only an unusual sight to most men, but also a strange experience to most elephants. They were lashed with strong ropes, slung as far as practicable in slings, hoisted up with cranes with threefold tackles, and lowered into the steamer's hold like bales of cotton. When in the hold they are placed in pens built of strong teak timber baulks, bolted to the ship's side to prevent them from breaking loose. The fear the animals suffered was the only pain they underwent; and by watching the eyes of the poor beasts their terror was manifest. Tears trickled down their mild countenances, and they roared

with dread, more especially when being lowered into the hold, the bottom of which was sanded for them to stand upon. We are told that one timid female elephant actually fainted, and was brought to with a fan and many gallons of water. At sea it appears that the animals get into a curious habit of occasionally—evidently with a preconcerted signal—setting to work rocking the ship from side to side, by giving themselves, simultaneously, a swinging motion as they stood athwart the ship, the vessel rolling heavily as if in a sea-way. This they would do for a spell of an hour or more, and then desist for several hours until the strange freak came to them again. When they reached port, they were hoisted out of the hold and swam on shore, thirty-five being thus safely landed without any accident whatever. When they were released from the slings it was a supreme moment for the mahout who was always on the elephant's neck from the time of its touching the water to letting go. As the word was given to let go, each of the elephants, either from the lightness of his heart at being freed from his floating prison, or from his own weight, we are not sure which—lightness of heart, like lightness of head, cause elephants and men to play pranks—plunged down deep into the water, the mahout on his neck. The anxiety on the face of the mahout, just a second before the plunge, was a study; so, too, was it when elephant and man rose to the surface again, the former blowing water from his trunk and the latter from his nose.

A South American Plant Whose Leaves Cure Fatigue.

The plant from which the coca leaves are obtained thrives best in the elevated forests of the Andes. In time it is covered with delicate white flowers, which are succeeded by red berries. The leaves can be stripped from the plant three times a year, and are at once thoroughly dried. When the packages of coca are opened they emit a powerful tealike odor. Mr. Christison has tried the effects of the leaves upon himself. He has taken long and fatiguing walks, living at the same time after his usual manner: then he has repeated the walks for even greater distances, and, when overcome with fatigue, at some resting place he has chewed thoroughly and swallowed eighty grains of coca. No real effects were observed until he went out of doors and resumed his rapid walking; then all sense of weariness disappeared, and he could walk not only with ease, but elasticity. At the end of the walk the pulse was ninety, and in two hours fell to seventy-two. At dinner time there was neither feeling of hunger nor thirst after abstaining from food for nine hours, but upon dinner appearing ample justice was done to the meal. No unpleasant effects were felt the next day. Mr. Dowdeswell, in an article in the *Lancet* for April 29, 1876, has the same idea as to the great and wonderful power of endurance gained by its use.

The Grief of a Rhinoceros.

Even a rhinoceros is capable of grief, according to a Paris correspondent, who tells the following anecdote of the rhinoceros which recently died in that city. The animal had been in the collection at the Jardin des Plantes for twenty-two years, but was of an unsocial and irascible temper, and not even his keepers ventured to take any liberties with him. One day, however the little lap-dog of the wife of the director, given her by Queen Amelie, got into his house by squeezing in between the bars of the iron work. Instead of killing the intruder, as expected, the rhinoceros allowed the little creature to play with him, scampering over his back, biting his neck, and playing off all manner of sportive tricks. The two became great friends; the "wee doggie" passing several hours each day with his undemonstrative acquaintance, who put up patiently with all its teasings. One day the rhinoceros inadvertently set his foot on his little pet killing it instantly. The poor brute's grief at the catastrophe was pitiable; for two days he did not eat a particle of food.

Some insects are endowed with an appetite so keen, and a digestion so rapid, that they eat incessantly throughout their whole lives. They begin as soon as they are born, and go steadily on until they die.



WHAT MY LOVER SAID.

By the merest chance in the twilight gloom,
In the orchard path he met me—
In the tall, wet grass, with its faint perfume—
And I tried to pass, but he made no room:
Oh, I cried, but he would not let me:
So I stood and blushed till the grass grew red,
With my face bent down above it,
While he took my hand, as he whispering said—
(How the clover lifted each pink, sweet head,
To listen to all that my lover said:
Oh! the clover in bloom—I love it!)

In the high, wet grass went the path to hide,
And the low, wet leaves hung over;
But I could not pass upon either side,
For I found myself, when I vainly tried,
In the arms of my steadfast lover.
And he held me there, and he raised my head,
While he closed the path before me;
And he looked down into my eyes and said—
(How the leaves bent down from the boughs o'erhead,
Oh, the leaves hanging lowly o'er me!)

Had he moved aside a little way,
I could surely then have passed him,
And would not have heard what he had to say,
Could I only aside have cast him.
It was almost dark, and the moments sped,
And the searching night-wind found us;
But he drew me nearer and softly said—
(How the pure, sweet wind grew still instead,
To listen to all that my lover said:
Oh, the whispering wind around us!)

I am sure he knew when he held me fast,
That I must be all unwilling;
For I tried to go, and would have passed,
As the night was coming with its dew at last,
And the sky with stars was filling;
But he clasped me close when I would have fled,
And made me hear his story,
And his soul came out from his lips and said—
(How the stars crept out where the white moon led,
To listen to all that my lover said:
Oh, the moon and stars in glory!)

I know that the grass and the leaves will not tell,
And I'm sure that the wind—precious rover—
Will carry his secret so safely and well
That no being shall ever discover
That no word of the many that rapidly fell
From the eager lips of my lover—
Shall never reveal what a fairy-like spell
They wove round about us that night in the dell,
In the path through the dew-laden clover;
Nor echo the whispers that made my heart swell
As they fell from the lips of my lover.

Reclaiming the Wastes.

There was once in the vicinity of London a place called "The Five Fields," which formed a most unhealthy clayey swamp. The spot was the dread of all night travellers, and a most unpopular region with all classes. But at length inventive genius was brought to bear on the unwholesome spot. A gentleman examined the fields and found below the clay a fine substratum of gravel. The clay was removed and burned into bricks, and some of the finest residences of London now stand on the site of that old clay swamp, built out of materials found on the spot. It was a fine illustration of the means adapted to the end.

We may find a suggestive hint here to influence us in our labors in the moral world. There are moral swamps in every town, be it large or small, which need just such thought and pains-taking to reclaim them. There is a substratum of valuable materials in many a young person, who is shunned for his defects as if he were a moral plague spot. It is a noble mission to take such a one by the hand and lead him onward and upward to a better life. The man who took John B. Gough by the arm in his early, degraded days, and led him into the warm circle of his own pure fireside, and by degrees rescued him from the thralldom of drink, has never regretted his work. If he had never reclaimed another wanderer, he might well feel that he had still accomplished a great life-work. We should all be up and doing in a world so full of those who need our aid. It is most saddening, at the best, to look about us and

"See how the wrecks go down,
With warnings everywhere,
To guide the voyager through.
Oh how the wrecks go down,
Or wander tempest-tost,
Their light and anchor gone—
Forever lost!"

Cast Down, but not Destroyed.

Did you ever reflect that Washington lost far more battles than he gained, and yet if he was not a successful man, where will you find one? Think of this when, after your best efforts you find yourself defeated, and are ready to give way to despondency. Almost all successful men have been made so by battling with difficulties that seemed overwhelming—"cast down, but not destroyed" has still been their motto. The struggle has developed nerve, and muscle, and brain power, that in the end won a glorious success. The words of Burns are in point—

"Though losses and crosses
Be lessons right severe,
There's wit there, you'll get there,
You'll find no other where."

When you come to think of it, do you recall a single great enterprize that ever succeeded from the very start. Look at the tug and toll for years to which Mr. Goodyear was subjected before he completed his improvements in the process of manufacturing india-rubber. He was the laughing stock of his associates, and few could be found who had faith in his transactions. Said one who was describing him to a friend:

"If you meet a man with an india-rubber hat, an india-rubber coat and pants, an india-rubber pocket-book, without a cent in it, that is Charles Goodyear." His name, to-day, stamped on an article gives it a very ready sale, and he will always be one whom the nation delighteth to honor. Our poor soldiers who wrapped themselves in his blankets in the wintry storms, will always remember him with gratitude. Without such protection thousands more would have perished in camp than fell by the enemy's bullets. It was well for the world that he did not suffer himself to be turned aside or cast down by repeated failures and difficulties.

Important Trifles.

When pins first appeared, they were thought of so much importance that a Parliamentary law was made to regulate their shape. All pins were prohibited from being sold unless they "be double headed, and the heads soldered fast to the shank of the pinne, well smoothed, the shank well shaven, the point well and round filed, canted, and sharpened." This long process was abandoned soon after, as their use became universal, and superseded the employment of laces, ribbons and tags.

An Energetic Girl.

The story of Isa Randolph is worth telling, if only to show girls what one quick-witted, energetic woman can do to retrieve her fallen fortunes. She was daintily reared and bred, and, when left an orphan penniless, hardly knew how to obtain a livelihood. None of her accomplishments were useful in bread winning, and the life of a seamstress was too much like drudgery to meet with her approval. One day she found a cheap boarding-place, sold a diamond ring, put an advertisement in the paper, then sat down to await results or starve. Within a week a million people read this advertisement: "Mademoiselle Isolena, purchaser of dress goods, gloves, hosiery and millinery. Persons at a distance desiring to purchase dry goods, etc., in New York, may address Mademoiselle Isolena. Every kind of underwear and small wares bought, goods and colors matched, and the best selections made at the lowest prices. Terms five per cent. All orders must have the money enclosed. Goods sent by express or mail at purchaser's expense." Three days Mademoiselle Isolena waited in heart-sick impatience, and then there came three letters. One contained a dollar, another six, another ten, and each had a small order. Total profits, eighty-five cents—the first money she ever earned in her life. She put on a pretty hood and a bright smile, and went out to do the shopping. She certainly had a genius for the business, and made excellent bargains. That night our little woman slept well; she had earned enough money to support herself for a day—not so bad for a beginning. The following day she received seven more letters, enclosing forty dollars in all. These orders employed her nearly all day, and at night she sent a letter with each, detailing the business transaction. The next day there came but one letter, and she was a trifle discouraged. Then came the Sabbath, and on Monday there were twenty letters. The following day brought more letters, and a loud complaint from her landlady concerning the trouble of bringing up so large a mail. Isolena at once turned all her available assets into money, and made one more bold push for her life. After much search she found a small back room on the third story of a store on a crowded business street, within easy reach of the best stores, and furnished it plainly. The room was chamber, parlor, kitchen, office, all in one. She advertised again, and went into her business with reckless energy. Day by day that business increased. It kept her in the stores nearly all the time. By-and-by she engaged a female book-keeper. Business steadily increased as the weeks went by, and presently Mademoiselle Isolena removed to more convenient quarters, and advertised again. One year from the day on which she made her first purchase on commission found her at the head of a flourishing business, supporting herself handsomely, and with money in the bank. Energy and industry had made her what all girls can become if they but try hard enough—a successful woman.

Fishing for Pearls.

Few persons have any idea of the amount of labor, or of the perils and hardships necessary to obtain a pearl. It is generally supposed, that the life of a pearl diver must be one of ease and luxury, but such is not the case. On the contrary, there is scarcely any occupation more difficult, or fraught with more danger, than that of diving for pearls. Neither is it a very lucrative business.

The largest pearl fishery in the world is on the coast of Ceylon. There are also extensive fisheries on the coast of China and Japan. Every little while we read a sensational report of extensive operations being carried on in this country, but they may generally be set down as false, for our American oyster is a poor manufactory of pearls. We have, indeed, a few genuine American pearls, but they are produced by a species of muscle or fresh-water clam, and not by the oyster, and to find a valuable pearl in one of them is a very rare occurrence.

A busy scene is presented on the coast of Ceylon during the fishing season, which is in the month of March. The government protects them during all other seasons, and a heavy fine is imposed upon any one who removes an oyster from its bed, except during the allotted time. The fisheries are all owned by the government, and are generally hired by merchants, they stipulating to give all the mother-of-pearl, and a certain share of all pearls obtained. The government thus makes a very profitable

speculation, for all the pearls that are found do not equal in value one-half of the mother-of-pearl.

Large numbers of native divers are employed to "go down" after the oysters. The most common depth to which they descend is from twenty to thirty feet; sometimes they dive as deep as sixty feet, but at such depth the pressure of the water above is so great, that they generally come up bleeding at the nose and ears. The length of time that they remain under water is about forty seconds. They often use a weight to aid them in their descent. When once on the bottom, the weight is placed on the diver's back, and he falls to work filling a bag, which is suspended from his neck. He also carries a long sharp knife, with which to defend himself from sharks. Great pains are taken to kill and frighten them from the coast, but, notwithstanding all precautions, many natives are annually devoured by them.

The business is mainly one of luck and chance, for comparatively few of the oysters contain a pearl. Indeed, cases have been reported where a gang of divers have been employed a whole season without finding a single pearl of marketable value. Thus, it will be seen that the government has altogether the best end of the bargain.

There are many worthless imitations of pearls, and some of them are such exact representations, as to deceive any but the most experienced jeweler. They are made by blowing a hollow globe of glass of the right size, as thin as possible, then covering the inside with a varnish made of fish scales, filling with glass and sealing. The glass covering gives it the hardness and smoothness; the varnish gives it the lustre, and the wax the required weight of a genuine pearl. The cheat can easily be discovered by the aid of any strong acid, but this test is seldom used as it always injures the pearl if it be genuine. In case it is employed, a little ammonia, or a strong solution of soda and water, should be at hand, to destroy the effects of the acid as soon as any chemical action takes place.

The Chinese have a way of manufacturing pearls so perfect, that not even the most experienced jeweler or chemist can detect the difference without breaking it. They place a small round pebble inside the shell of a living oyster, and, as the oyster is unable to remove it, he covers it with the substance of which pearls are composed, which is nothing but carbonate of lime, and in a short time it becomes almost a genuine pearl. It is not from a lack of ingenuity that the Americans have not adopted this plan, but because our oysters do not produce pearls.

A Curious Royal Wager.

The following anecdote illustrates the truth of the proverb ancient the slips between the cup and the lips:—A few years before his death, the Emperor Nicholas of Russia sent a looking-glass of rare size and beauty, with an embassy, to the Empress of China. The looking-glass had to be carried all the way from St. Petersburg to Peking by human hands. Despite the immense distance which had to be performed in this manner, the looking-glass safely reached China; but, in the meantime, difficulties had broken out between Russia and China. The Son of Heaven neither admitted the embassy, nor did he accept the present. A courier was despatched to St. Petersburg, who asked the Emperor what was to be done with the looking-glass. The Emperor replied that it should be carried back by the same route, and in the same manner. When he gave this order the Grand Duke Michael happened to be present, and offered to lay a wager with the Emperor to the effect that the looking-glass would be broken on the way back to St. Petersburg. The Emperor accepted the wager, and the bearer of the looking-glass received stringent orders to be as careful as possible. If they should break it on the road, they would be severely punished; but if they should bring it back safely, they would receive a handsome reward. They carried it back with the most incredible care, forty men bearing it by turns, and safely reached St. Isaac's Palace in St. Petersburg with it—where the Emperor stood, with his brothers, at the window of the palace, and laughed at having won the bet. But on the staircase of the palace one of the carriers slipped his foot and fell down, dragging several of his companions after him, and the precious looking-glass was broken into a thousand pieces. The Grand Duke, therefore, won his bet.

Coal and its Products.

That coal should be entitled to a description as a chemical product, may seem a little doubtful to some persons. Nevertheless, science has demonstrated the fact that it is a product of vegetable origin, and, like vegetable matter in general, it is chiefly composed of hydrogen and carbon, with a small percentage of nitrogen, oxygen, and inorganic matter. The theory generally adduced as to its origin is, that vegetable plants were first, by a process of slow decay, converted into peat or turf; that subsequently the land subsided, and was covered with layers of earth, etc.

The pressure of the strata of earth, and the influence of terrestrial heat, added to the absence of air, gradually changed the turf into the form we now recognise as and use to such a large extent—coal.

Next to its use as a heating power, the principal employment of coal is in the manufacture of gas, which is carried on to an enormous extent in almost every city in the United States. From the latter operation, is derived many useful substances, which are not only used in the laboratory, but also find employment in other places and manufactures.

Gas is obtained from coal by distilling the latter in retorts, in a manner which will be fully described in another article. The principal products of this destructive distillation are olefiant gas, ammonia, carbonic acid, tarry matter, bisulphide of carbon, carburretted hydrogen, etc.

Of these, ammonia, bisulphide of carbon, and carbonic acid, have already been described in these columns. Of the others, tarry matter is the most important. As obtained from the distillation of either coal or wood, it is of a very complex nature, containing among other substances, coal-tar, naphtha, benzol, used in making aniline colors; also, in small proportion, aniline, pitch, now so extensively used as a roofing material, carbolic acid, etc. Indeed, the list of chemical matters derived from the process of distilling tarry matter, might be almost indefinitely extended.

The first substance given off from the distillation of tarry matter is coal-tar naphtha. From it the diluted products of other matters are separated, the naphtha remaining at ordinary temperatures, as a solid insoluble in water. It is, however, soluble in spirits of wine, and this property is availed of in crystallizing it. From the crystallizing process there result white crystals which are very greasy to the touch.

Naphtha is a little difficult to inflame, but when lighted, burns with a smoky flame, and is chiefly used in naphtha spirit lamps.

Men of Genius.

BY J. J. WORTENDYKE.

Upon examining an old Biographical Dictionary recently, containing five thousand distinguished characters, of all ages and nations, I found the greatest proportion were Frenchmen, next English, Scotch, and Germans, and next Italians, Dutch, and others. The reason for there being a greater number of Frenchmen is, that in France genius is more patronized, no matter in what circumstances it is found; while in England few persons of talent, if they are not rich, or well-dressed, have any chance of being known.

One-half of these five thousand were descended from poor parents, and raised themselves from the depths of poverty by their own exertions.

Some trades seem to have produced more men of genius than others.

Many shoemakers have risen to distinction in literary pursuits. A number have commenced life as tailors, many as weavers, and others as gardeners and stone masons.

The following are among those who have struggled with poverty, but have succeeded in benefitting the world:

Æsop, Terence, and Epictetus, men distinguished in ancient times, were slaves at their first outset in life. Pythagoras, a Greek philosopher, was a common porter at first. Cleanthus, another philosopher, supported himself by carrying burdens and drawing water.

Prof. Heyne, of Göttingen, one of the first classical scholars of his age, was the son of a poor weaver, and

for many years struggled with the most distressing poverty.

Sir Richard Arkwright, the inventor of the machinery for cotton spinning, was a county barber, or dealer in hair.

Miss Benges, the authoress of the "Life of Mary Queen of Scots," and other productions of merit, was so poor in early life, that, for the sake of reading, she used to peruse the pages of books in the booksellers' windows, and returned day after day, to see if another page had been turned over.

Sir Edmund Saunders, Chief Justice of the Kings Bench, in the reign of Charles II, was an errand boy. Linneaus was apprenticed to a shoemaker.

The famous Ben. Johnson, worked some years as a bricklayer. Kepler spent his life in poverty. Pope Adrian VI, could not, in early life, afford candles; he often read by the light of the street lamps. Claud, of Lorraine, was the apprentice of a pastry cook. Buchanan, the Scottish historian, was born of poor parents, and underwent many difficulties. William Hutton, the historian, was the son of a wool comber. Bunyan, the author of the Pilgrims' Progress, was the son of a tinker, and himself followed the profession.

It is well known that Burns was a peasant, and followed the plough.

Captain Cook, the ancient navigator, was at first a cabin boy. Daniel Defoe, the author of "Robinson Crusoe," was the son of a butcher, and had to struggle with many misfortunes. James Ferguson, the Astronomer and Philosopher, was the son of a poor barber, and was a shepherd. George Fox, the founder of the Society of Friends, or Quakers, was the son of a weaver. Gifford, the distinguished editor of the Quarterly Review, was at one time so poor that he could not buy paper, and would work algebraical questions with a blunted awl on fragments of leather.

The Prairie Chicken.

BY M. ERVIN.

Upon the beautiful prairies of the West is found a species of grouse which is popularly called the prairie chicken. They have a beautiful mottled plumage of white and gray; the feathers of many of them are finely marked. The birds are nearly the size of ordinary domestic chickens, and where settlements are not so populous, are very numerous.

In the early spring they gather together—indeed during all the winter they congregate in large flocks—upon the highest, driest ridges of land in the open prairies, and hold mass meetings. They are very noisy. The males spread their fan-like tails, lower their wings, erect and draw back their heads, and puff out their large and handsome wattles, and strut backward and forward in such self-satisfied complacency as would put a turkey-gobbler to shame, meanwhile uttering a series of sounds like the beating of a heavy bass drum. He usually utters about three distinct sounds consecutively, commencing with a deep, rumbling, but clearly marked tone, and increasing in volume and force with each successive one until the last, which is prolonged and very strongly accented. They may be heard at great distances, and make the air vocal with their impressive boom, boom, boom! in the early spring mornings, and the late afternoons and evenings.

Meanwhile the hen chickens, like dutiful wives of the harem as they are—for Sir Pomposus is oriental in his social habits—bustle modestly about, uttering a shrill, quick ca-ca-ca, in an affirmative tone, as if they fully believed and indorsed all the good things the head of the harem had been saying about himself and more too.

A little later in the season they separate until after the nesting season, and the young broods are able to fly and care for themselves, when they again collect in large flocks, or coveys. They are a valuable bird, as they destroy immense numbers of insects and prevent their ravages.

They are much prized by many as an article of food, and it has been found necessary to pass laws prohibiting their destruction during the nesting season, and until the young are fully grown.

The birth-place of cholera, according to a writer in the London Times, was Hindoostan.

THE SKIN.

BY SIR ALFRED POWER.

There's a skin without and a skin within,
A covering skin and a lining skin;
But the skin within is the skin without,
Doubled inwards, and carried completely throughout.

The palate, the nostrils, the windpipe, and throat
Are all of them lined with this inner coat,
Which through every part is made to extend—
Lungs, liver, and bowels, from end to end.

The outside skin is a marvelous plan
For exuding the dregs of the flesh of man;
While the inner extracts from the food and the air
What is needed the waste in his flesh to repair.

While it goes well with the outside skin,
You may feel pretty sure all's right within;
For if anything puts the inner skin out
Of order, it troubles the skin without.

The doctor, you know, examines your tongue
To see if your stomach or bowels are wrong;
If he feels that your hand is hot and dry,
He is able to tell you the reason why.

Too much brandy, whiskey, or gin
Is apt to disorder the skin within;
While, if dirty or dry, the skin without
Refuses to let the sweat come out.

Good people all! have a care of your skin,
Both that without and that within;
To the first you'll give plenty of water and soap,
To the last little else beside water, we'll hope.

But always be very particular where
You get your water, your food, and your air;
For if these be tainted, or rendered impure,
It will have its effect on your blood—be sure!

The food which will ever for you be the best
Is that you like most, and can soonest digest;
All unripe fruit and decaying flesh
Beware of, and fish that is not very fresh.

Your water, transparent and pure as you think it,
Had better be filter'd and boiled ere you drink it,
Unless you know surely that nothing unsound
Can have got to it over or under the ground.

But of all things the most I would have you beware
Of breathing the poison of *once breathed* air;
When in bed, whether out or at home you may be,
Always open your windows, and let it go free.

With clothing and exercise keep yourself warm,
And change your clothes quickly if drench'd in a storm;
For a cold caught by chilling the outside skin
Flies at once to the delicate lining within.

All you who thus kindly take care of your skin,
And attend to its wants without and within,
Need never of cholera feel any fears,
And your skin may last you a hundred years.

Curiosities of Lunacy.

There are cases where blows on the head have benefited the brain, and produced extraordinary changes for the better. Mabilon was almost an idiot till, at the age of twenty-six, he fell down a stone staircase, fractured his skull, and was trepanned. From that moment he became a genius. Doctor Prichard mentions a case of three brothers who were all nearly idiots. One of them was injured on the head, and from that time he brightened up, and is now a successful barrister. Walenstein, too, they say, was a mere fool till he fell out of a window, and awoke with enlarged capabilities. A patient in an asylum was the victim of many delusions. He was paying off the national debt, going into partnership with Baron Rothschild, and forming a lodge of female Freemasons. One day an epileptic patient, irritated at being perpetually asked to buy imaginary shares, gave him a tremendous blow on the bridge of the nose. From that time he improved rapidly, and he acknowledged that the blow had a sobering effect, and had quite knocked the nonsense out of him. There is no doubt that this was the secret of that cruel old

remedy for madness, the circulating swing, mentioned favorably by physicians of the last century. This horrible swing was a small box fixed upon a pivot, and worked by a windlass. The "inflexible" maniac, or the maniac expecting a paroxysm, was firmly strapped in a sitting or recumbent posture. The box was then whirled round at the average velocity of a hundred revolutions a minute, and its beneficial effect was supposed to be heightened by reversing the motion every six or eight minutes, and by stopping it occasionally with a sudden jerk. The results of this swing (which occasionally brought on concussion of the brain) were profound and protracted sleep, intense perspiration, mental exhaustion, and a not unnatural horror of any recurrence to the same remedy, which left a moral impression that acted as a permanent restraint. That the results were often beneficial we have indisputable evidence.

Dull Great Men.

Descartes, the famous mathematician and philosopher—La Fontaine, celebrated for his witty fables—and Buffon the naturalist, were all singularly deficient in the powers of conversation. Marmontel, the novelist, was so dull in society that his friend said of him, after an interview, "I must go and read his tales, in recompense to myself for the weariness of hearing him. As to Corneille, the great dramatist of France, he was completely lost in society—so absent and embarrassed that he wrote of himself a witty couplet, importing that he was never intelligible but through the mouth of another. Wit on paper seems to be something widely different from that play of words in conversation which, while it sparkles, dies; for Charles II., the wittiest of monarchs, was so charmed with the humor of "Hudibras," that he caused himself to be introduced in the character of a private gentleman to Butler, its author. The witty king found the author a very dull companion, and was of the opinion, with many others, that so stupid a fellow could never have written so clever a book. Addison, whose classic elegance has long been considered the model of style, was shy and absent in society, preserving, even before a single stranger, formal and dignified silence. In conversation Dante was taciturn and satirical. Gray and Alfieri seldom talked or smiled. Rousseau was remarkably tame in conversation, without a word of fancy or eloquence in his speech. Milton was unsocial and sarcastic when much pressed by strangers.

A Book of White Paper.

If a person would take the pains to note down in a single day all the good suggestions, every stray hint, every practical idea that comes up before the mind, it would make out quite a surprising list. If he had the facility of turning it into a permanent shape it might prove greatly to his advantage, and a source of much profit to others also. Suppose some wide awake young person tries the experiment for a week. Provide a fair, convenient blank book, not too fine, and write out the ideas in a plain, clear hand as they occur to him.

A learned scholar when asked by a young man what books he should procure the better to advance himself in his profession, replied: "A book of white paper!" And it is a most useful one to any person.

Dr. Rush, when asked how he could, with his large practice, find time to write so much that was valuable on the subject of medicine, took a blank book from his pocket and replied that he usually filled one such book a week with facts gathered at the bedsides of his patients.

A gentleman who stands at the fore-front among American writers in the department of Belles-Lettres, and is also a professor in one of our oldest colleges, was noted when a boy in college for this habit of noting down valuable ideas as they were gathered up in the course of his reading and observation. He had quires of foolscap thus written over and laid aside for future use. That was years ago, but very likely he is drawing from those stores yet, though he has never ceased to add to them.

It is surprising how everything can be laid under tribute when once this habit is formed of gathering information. The most unlikely sources can give us sometimes the very choicest gains. Once fix the habit, and you will find it very easy and very delightful.

Gossiping.

BY ROSA V. RALSTON.

The motives for gossiping are as various as the natures of those in whom this motive exists. First, there is a party who feel constrained, from their malice toward a second party, to fish up every bit of information detrimental to that party, and, mixing with the delicious pabulum a titbit of scandal, convey it to a third party, by way of a warning against the development of any further degree of intimacy between the two. Then this second party, loth to keep pent up in their bosoms anything the world should and *ought* to know, roll that important communication off their tongues as volubly as a fresh oyster glides down the throat of a hungry man. And when once the mills of the god of Ill-fame are set in motion, there is no stopping of them until the poor, unfortunate victim is ground to powder.

Then there is another kind of talking, promoted by the desire for popularity—notoriety, I should say. Although it may not be productive of as much harm as that above mentioned, it is equally as heinous and contemptible. It is both "double-faced" and "double-mouthed," but proclaims the deeds of all with the same pernicious tongue. This species of tattler never discovers but one face—the white one "with smiles of love adorned"—to the party present, so that a person of little experience in the world can rarely detect the duplicity contained therein.

Everybody are more or less interested in the doings of their neighbors; and he or she who will keep them posted is always a welcome visitor at their houses. This informant, happy in the thought that she is doing a deal of good, keeps the shuttle of every day talk flying from fireside to fireside, mixing with the woof and warp of her narrative a little exaggeration, and constructing the quality to suit each party. Every one desires to be heard, and if he can't be heard in one way, he will in another. And as few people have the moral courage or inclination to close their ears to a tattler, this plan is frequently adopted to obtain an audience.

There is, also, a species of gossiping peculiar to the Emilia-like natures, which is productive of much harm. Weak-minded, unsuspecting, and naturally communicative, they do not hesitate to talk in a loose manner of their dearest friends, and are much alarmed in the end to see what mischief their words, spoken with no ill-intention, have created.

Virgil gives a beautiful description of Fame, which illustrates the progress of ill-report or scandal from its incipency. But I suppose tattlers have existed ever since the world was created, else Solomon would not have written, "Where there is no tale-bearer, strife ceaseth." The best way is for sensible people to have nothing to do with them. Still, by that means, you will not escape them. If you put on a sober countenance, and keep your tongue mostly within your mouth, you are libeled an "odd sort of person," and Rumor has her emissaries at work to detect the cause of this singularity. Then the current opinion, at first *whispered* around, is taken up by a bevy of tale-bearers, more loathsome than the Harpies celebrated by the Mantuan bard, and magnified and altered to suit the public, till it is at last decided that you have either been crossed in love, or are laboring under the pressure of some heavy financial losses, and, hence, are in a fit state of mind for the insane asylum.

So the world will be the world as long as it lasts. But who would have it changed to anything else? Oh, no one, of course.

The Art of Talking.

Madame de Staël, we believe it was, who said that in France alone was the art of conversation understood. French women specially are brilliant talkers. The English are good listeners, often, but heavy talkers. The Germans approach the French in the versatility of their conversation, but not in the magnetism, their faces giving all too little help to their tongues. Americans are free and lively talkers without having much of the real art of conversation. They are voluble rather than thoughtful, persistent rather than sympathetic, bent on having a hearing, rather than, as Bacon would say, "leading the dance" of conversation. The art of which we are writing is something far other than talking; it implies a mutual bond of interest between people, and a mutual willingness to receive

as well as impart. So the man who insists on talking at you is voted a bore. The American definition of a bore betrays the great American weakness in this regard:—"A bore is one who insists on talking to you about himself, when you want to be talking to him about yourself." The very word conversation defines its meaning; it is an interchange. Dr. Johnson, who was an immense talker, knew little of the art of conversing. Yet he is the man who remarked of an evening gathering that there was much talk but no conversation, by which he probably meant that he was defrauded of the privilege of doing the talking by the persistent and general interchanges. Coleridge, likewise, was a brilliant and unparalleled talker in the higher meaning of the word, but good for nothing in a conversation, which implies the double duty of communicating and listening. Indeed, conversation might be defined as the art of intellectual magnetism, with a positive pole of address, and a negative pole of sympathetic attention. Only they possess the art who can keep a balance between them, and be equally good at talking and listening. Our parlors are full of wall-flowers blooming in painful quiet, but with nothing to contribute to the fund of conversation. And we have many vapid and ceaseless social lecturers who imagine their success in the art of conversation is in proportion, as by keeping their own tongues a-going they stop all the others; but people who can "give the occasion" to others and then draw out with their ears what they have started with their words—people too unselfish to be wholly silent, and too modest to monopolize—for the lack of these our circles are either stupidly silent, or monotonously bored by the irrepressible sound of one voice.

Conversation suggests discourse about things rather than people. Here is another bane of social interchanges. They are too often on the lower level of that talk which finds its subject matter in persons. That is gossip. People who do not read or think must largely make people and neighborhood events the staple of their talk; but the bad habit obtains even among those who by culture have been fitted to make better use of their tongues. Gossip does not always indicate ignorance. It is to be feared it has become a fashion into which intelligent people are drawn. But this kind of talk is neither edifying nor wise. If there were no worse results, it narrows the mind to shut up its view to neighborhood details. There is no excuse for it now. The world's gates all stand open. The papers bring all lands, all governments, all rising ideas to our very doors. Books lead us into the liberty of the world, and the best of its doing and thinking. How much grander in your evening *vis-à-vis* to discuss popular education in Europe, than the toilet of your latest caller, or the *bon mot* of your waggish friend. And to do this will require no learning. Only a little recollection of what you read when lingering over your coffee.

There is one vice of our conversation against which we should be on our guard even more than against our empty and harmless gossip. It is a growing fondness for smartness. Tartness, repartee and satire are very good for an occasional seasoning; but like horse-radish and mustard they make a very poor dinner. They leave a bad taste in the mouth. As Bacon says:—"Certainly, he that hath a satirical vein, as he maketh others afraid of his wit, so he had need be afraid of others' memory." And for this excess of biting condiments the personal character of our talk gives the occasion.

Unfinished Works.

Nothing teaches more impressively man's frailty than his unfinished undertakings. Lying in the quarry near the Syrian city of Baalbec is the largest worked stone in the world, a gigantic block nearly seventy feet in length, almost detached and ready for transportation to its niche in the titanic platform of the Temple of the Sun. It seems as though the workmen had just momentarily left their labor, and we fancy that we must soon see them returning. But forty centuries or more ago some providential emergency called them from their work; and therelies the huge block, and yonder is the cyclopean wall with its vacant niche, one of the most striking and impressive of the unfinished labors of the world. And so the colossal Kutub Minar, though a finished column in itself, is but a fragmentary memorial of a gigantic unfinished plan; and as such it will doubtless stand to teach many generations yet to come that, though man may propose, heaven will dispose.

Wonderful Waters.

DUCKS LOADED DOWN WITH CRYSTALS—A NEW PUZZLE FOR SCIENTISTS.

We have more than once heard of the wonderful waters of Deep Spring Valley Lake. Lieutenant Witherspoon, Company D, Twelfth United States Infantry, in command of the relief party for Capt. Joe's Indians, passed several weeks, in 1877, in the valley, and bears witness to the truth of the remarkable phenomena. The ducks, which visit the lake in great numbers, become, at certain times, so loaded down with crystallizations of borax, salt, or some similar substance, that they are utterly unable to fly, and while in this condition become an easy prey to the Indians, who wade into the water and pick them up in their hands. In fact, this substance often collects upon the birds' bills in such weight as to actually drag their heads under water and drown them. As asserted by Mr. Beasley and family, who have lived near the lake for years, a duck is often loaded with several pounds' weight of this substance—not less than ten pounds in some instances. During the first stages the crystals are quite evenly disposed over all the birds' feathers above water, sticking them together as firmly as if glued. Then the crystals accumulate in bunches or strings, forming drags or rafts, with which the bird can swim but slowly, if at all; and if on the bill or head, soon causes death by drowning.

The crystallization always takes place in the night-time, and entirely disappears after a few hours' exposure to the morning sun, or in the fresh water springs on the border of the lake. The condition necessary to produce the crystals in this manner is no less remarkable. It occurs during the spring months only, and only on clear nights with a north wind; never on cloudy nights, or with the wind from any other quarter than the north. The lake, which is about a mile and a quarter in length, and perhaps a mile in width, is not over three feet in depth at the deepest. Strong winds, no matter from what direction, agitate its waters to the bottom, giving them a milky or yellowish cast. If this effect was produced by the dessicating north winds exclusively, it might afford some clue to the cause of the excessive crystallization at such times, but it is not; other winds stir the gases from the bottom quite as much, or more, than that.

During the lieutenant's stay in the valley the wind one night was from the north, but the sky was overcast. As foretold by Capt. Joe, no ducks were caught the next morning. On the following night the wind was from the same point, but there were no clouds. On such occasions the Indians spent the entire night in singing and in their peculiar incantations, in full faith that they truly insure an abundant harvest of ducks in the early morning. Their faith was fully realized on this occasion, for, before the sun's rays had touched the acrid waters, Captain Joe and his band had caught scores of the hapless birds.

There is one part of their incantations in which there is obvious virtue: A detail, each with a torch or firebrand, is stationed in or near the fresh water springs on the edge of the lake, and while singing, dancing, and doing other necessary things to propitiate the Great Medicine, at the same time keep the ducks away from the fresh water, where otherwise they would be safe from these rafts or crystals.

The principal supply of the lake is from two immense and bottomless pools of artesian waters located quite close to its edge. The valley itself is entirely surrounded by high mountains, its soil and general characteristics being nothing unusual to the country. But the Indians say no other lake within their knowledge ever affects ducks as does this, notwithstanding there are many others whose waters are even more impregnated with salt, borax, etc., in solution, than this appears to be.

Why Western Europe is Warmer than the United States.

BY B. C. MORSBEE.

It is a fact, not generally known, but none the less true, that the climate of Western Europe is much more temperate than that of corresponding latitudes in this country. If we examine a map of the world, we shall find that Great Britain lies between the fiftieth and

sixtieth parallels of north latitude, or about the same distance from the equator as Labrador. This country we know, is a cold, barren, unproductive region, and, judging by analogy, we might safely infer that England was the same. But such is far from being the case. England is a very fruitful country, and the temperature is about the same as that of Boston, which is ten degrees further south.

Again consulting the map, we find that Iceland is in the sixty-fifth parallel of north latitude. Following that parallel, we find that it touches the most northerly portion of North America. Hence, we might reasonably expect to find a similarity in the climates. Iceland enjoys a climate as mild as that of New Brunswick, which is twenty degrees nearer the equator.

The principal reason of this difference is on account of various currents in the Atlantic ocean. If we examine a map of marine currents, we shall find that a large stream or river of warm water flows from the Gulf of Mexico. This is called the Gulf Stream. Tracing this stream from its origin, we find that after reaching the latitude of New York, it takes almost a direct course for Spain. Reaching that country, it again takes a northerly direction, sweeping along the whole western coast of Europe until it reaches Iceland, where it divides, a small branch going to the west of the island, while the main body of the stream follows the same direction, until the most northerly point of Europe is gained. Here the obliging Gulf Stream turns abruptly to the east, and follows the northern coast of Europe until it loses itself in the cold waters of the Arctic ocean.

A closer examination of the map shows us that it is not owing to the Gulf Stream alone, that Europe possesses so much finer a climate. We find that there is a stream of equal size of cold water coming from the Arctic ocean, and bearing with it numbers of icebergs, which tend to keep the temperature of the stream nearly down to the freezing point. This stream is called the return current, and it washes the whole Atlantic coast from Greenland to New York.

There are currents of warm or cold water in nearly all parts of the ocean; they perform an essential work in preventing it from becoming a stagnant pool on a large scale. Where there are no currents, sea-weed is generally found in large quantities. Often it is so thick and strong, that a vessel can with difficulty sail through it. Such is the celebrated Sargossa sea in the Atlantic ocean.

The cause of these currents is not very well understood, but it is supposed in a great degree, to result from the excessive evaporation which is constantly going on in the Tropics. A partial vacuum is formed, into which the cold water from the Poles rushes with so great a momentum, as to displace a large body of warm water which must necessarily flow back towards the Poles. The direction of both currents is also known to be much modified by the shape of the coast along which they flow.

There are many facts which seem to show that this is not the correct explanation of the phenomenon; but it is the most reasonable one that has been offered, and until a better is found, must be accepted.

The Leaf of Life.

There's a certain curious member of the plant family very common in Jamaica, we are told, called the life-plant, or leaf of life, because it is almost impossible to kill the leaves. You may cut one off, and hang it up by the thread, where any ordinary leaf would be discouraged and dry up. It will send out long white thread-like roots, and set about growing new leaves. You may cut off half a leaf, and throw it into a tight box where it can get neither light nor moisture (necessaries of life to other plants), the spirited little leaf puts out its delicate roots all the same. Even pressed, and packed away in a botanist's herbarium—the very driest and dullest place you ever did see—it will keep up its work, throw out its roots and new leaves, and actually grow out of its covers. It is said that botanists who want to dry this pernicious vegetable are obliged to kill it with a hot iron or with boiling water.

Canary birds to the amount of 10,000 were exported to America from Hildesheim from the autumn of 1876 to February, 1877. Fifty-seven thousand were also exported from Alfeld to this country.

VALOR is abased by too much loftiness.—SIR P. SNEY.

"Jacob."

Jacob was the name of an Arab boy in the Oriental city of Cairo. He was poor, and, like most of the poor boys of that city, his chief ambition was to own a donkey and hire him out to the travelers to go to the pyramids and other places of interest in the neighborhood of Cairo. As it was, he was only the driver of another man's donkey; that is, when the animal was mounted by the traveler, he ran behind, poking the quadruped with a sharp stick to keep him in a brisk trot.

One day, while Jacob was standing in front of Shepherd's Hotel in Cairo, wishing he had a donkey of his own, an English traveler on the veranda beckoned to him and asked him why he looked so wistful, and Jacob answered that he was unhappy because he had no donkey.

And when the Englishman heard his story, he called his servant and told him to bring up *Maftish*, which was an old, sleepy donkey. Then he said to Jacob:

"Would you be happy if you owned that donkey, my lad?"

"Oh, master, I would be happy with any donkey!" said Jacob.

"Then," said the Englishman, "he is yours—I make him a present to you."

When he said this, the other travelers gathered around, with smiles on their faces, for it appeared that the Englishman was a man much given to making fun. He told Jacob to get on the donkey and ride him up and down in front of the hotel a few times, to show his gait. Jacob got astride of him, and found that he was stiff in the legs and moved slowly, notwithstanding the sharp pokes he gave him with his stick.

"I shall give the donkey a name that will draw custom for you," said the Englishman as the lad rode up to the veranda.

Jacob was much pleased that his benefactor should give the donkey a name, for he had seen some of his companions who hired their donkeys more easily than others, on account of fortunate names given them by travelers.

"I shall be much glad to call him what my master pleases," said Jacob.

"Then his name shall be *Lightning*," said the Englishman, and the other travelers laughed.

Jacob did not know what *Lightning* meant, and he continued to call his donkey by that name after the Englishman went away. He did not have much difficulty in hiring his donkey; but when the travelers started on their journey, they told Jacob he was a humbug, and that he had imposed on them with his animal. So that they only kept *Lightning* for a few minutes, and the same people never hired him twice.

One day, as he led his donkey toward the hotel veranda, after being called a little humbug by an angry traveler, who refused to pay him for hire for half an hour, he was spoken to by a fat man in a long black coat, who told him he ought to call his donkey *Slow-coach*.

After that Jacob called him *Slow-coach*, not knowing any more about the name than he did about *Lightning*. But this change of name, instead of mending matters, made them worse. In short, no one would hire his donkey any more on any condition, and Jacob and *Slow-coach* were a rueful pair, as they stood idly before the hotel.

One day, as he stood thus, the Prince of Wales came out from the veranda (the Prince was then on his way to the East Indies), mounted *Slow-coach* and rode him two or three yards, and then got off and took another donkey. Thereupon Jacob bemoaned his bad luck in hearing of an American sitting in a tilted chair on the veranda.

"Jacob," said the American, "your donkey shall be hired as much as any other, but hereafter his name must be the Prince of Wales."

The American had a certificate drawn up and sworn to before the American Consul at Cairo, to show that the Prince of Wales had, without any doubt, mounted Jacob's donkey; and when the lad wanted to hire the animal to any man, woman or child from England, all he had to do was to show this certificate, and they straightway engaged him, notwithstanding his moping gait and stiff legs. They engaged him for whole days, fondled him, and begged Jacob not to poke him up too sharp from behind. They fed him with whatever he

would eat, and the only drawback to the donkey's pleasant life was that his tail was plucked a good deal for mementoes.

Jacob said, and says still, that the luckiest day of his life was when he was spoken to by the American gentleman in a tilted chair.

Platinum.

BY JAS. P. DUFFY.

PLATINUM is a very heavy grayish-white metal, which is generally found in the form of small grains, alloyed with gold and other metals. To obtain the metal in all its purity, the native metal is, after the earth and sand adhering to it have been washed away, dissolved in *aqua regia*, and precipitated as a yellow powder by means of chloride of potassium. This is heated with carbonate of potash, and the mixture again dissolved by means of *aqua regia*, which is the only chemical combination that can be utilized for this purpose with advantage. A solution of sal ammoniac is then added, and the whole heated to redness, when a loosely coherent mass of platinum, called *platinum sponge*, is afforded.

The latter is placed in iron moulds of ingots and tightly rammed therein; the moulds and their contents being then heated in a wind furnace. Here the mixture gradually forms into a solid mass, which, when cool, is hammered and drawn out into wire, or rolled into foil.

Platinum possesses some very valuable properties, to some of which it owes much of its use. If a piece of platinum sponge be held at the point of a fine gas jet, and the gas turned on, it will act precisely as though a light was held to the jet.

In ordinary furnaces it is infusible; the only means of melting it being lime crucibles, to which blowpipe flames are attached. It does not rust or oxidize at ordinary temperatures, and withstands the attacks of all the common acids when used singly. It may, however, be dissolved in a mixture of nitric and hydrochloric acids. Being as soft as copper, and possessing very tenacious and malleable properties, it may be drawn into wire finer than that drawn from any other metal.

The principal uses of platina are confined to the chemist's laboratory, where, on account of its infusibility and inertness as a chemical agent, it is greatly made use of. It is, however, used in Russia as coin, and is occasionally fashioned into snuff boxes, etc. In the laboratory it is used in the distillation of sulphuric acid—large stills of it being employed in concentrating the acid. By the chemist it is also much used for tubes, dishes for evaporating chemicals, crucibles, etc.

Powdered metallic platinum is sometimes called *platinum black*, and is very finely divided. It possesses the property of absorbing oxygen gas, and imparting it to other substances. This may be illustrated by dropping a little spirits of wine or ether upon some platinum black after the latter has been exposed for a half hour to the air. The spirits will become oxidized, and the act of oxidation will cause the platinum to become red hot.

Indian Tradition.

Among the Seminole Indians there is a singular tradition regarding the white man's origin and superiority. They say that when the Great Spirit made the earth, he also made three men, all of whom were of a very fair complexion; and that after making them, he led them to the margin of a small lake and bade them leap therein. One immediately obeyed, and came out of the water purer than before he bathed; the second did not leap in until the water had become slightly muddy, and when he bathed, he came up copper colored; the third did not leap in until the water became black with mud, and came out with its own color. Then the Great Spirit laid before them three packages of bark, and bade them choose; and out of pity for his misfortune in color, he gave the black man his first choice. He took hold of each of the packages and having felt them, chose the heaviest; the copper-colored one then chose the second heaviest, leaving the white man the lightest. When the packages were opened, the first was found to contain spades, hoes, and all the implements of labor; the second enwrapped hunting, fishing and warlike apparatus; the third gave the white man pens, ink and paper—the engines of the mind—the mutual, mental improvement—the social link of humanity—the foundation of the white man's superiority.



SYDNEY ARCHDALE AND CONSTANCE DELAMERE.

A ROMANCE OF One Hundred Years Ago. AN HISTORICAL STORY.

BY FRANCIS BROWNE.

CHAPTER I.—THE STOLEN TRYST.

It has gone and come a hundred times since the period of our story—that beautiful, but fading, season of soft, still air and mellowed sunshine—the Sabbath of the Western year—which comes when the fervid heat is over and the harvest work is done, and is known now, as it was then, throughout the Northern States of the American Union, as the Indian summer, because, according to the red man's faith, it prevailed forever in the happy hunting ground to which his dead were gone. Its dreamy quiet rested on the hills and and valleys of the land, on the great rivers and the grand old woods, whose wealth of foliage had turned from green to gold; but quiet there was none in the hearts of the men, for the days of discord and division that were to end in a nation's birth, the hot dispute between England and her American colonies that was to be cooled only in blood, had begun. From the Atlantic ports to the backwood settlements, from the Falls of the St. Lawrence to the flats of the Mississippi, town and country, pulpit and press, were occupied with the same subjects—the rights of the colonies, and the inroads made upon them by England's King and Parliament. They were discussed in public meetings and social gatherings, in places of business, in farm-fields, and at family firesides, but not without the contention and confusion which attend every great movement among mankind.

While the great majority of the American people were agreed on maintaining their liberties at all hazards, there was an ultra-royalist minority no less devoted to the prerogatives of the Crown and the authority of Parliament. Hence the party names of Whig and Tory, and the party strife which had so long accompanied them in the old country, came into full operation on the shores of the new world; but there the names took a more practical significance, and the strife a more determined character, from the nature of the questions at issue, and their direct bearing not only on the public spirit, but the domestic interests of the land. On these accounts the controversy cut deep into private life; it estranged old neighbors, it divided friends and kinsmen, and crossed alike the prudently-laid plans of age, and the fair, fond dreams of youth.

Was it owing to some such dream that in an afternoon of that sweet Indian summer, on a thickly-wooded slope where the range of the Holyoke Mountains overlook the windings of the beautiful Connecticut River, a young girl sat on the moss-grown root of an old tree, and a young man stood leaning against its trunk by her side?

That young man had not completed his twenty-first year, but a finer specimen of early manhood was not to be found in the New England States. Tall and well proportioned, though somewhat spare, his frame promised the union of activity and strength; his face, one of the handsomest of the Anglo-Saxon type, had taken a tinge of brown, from exposure to sun and wind, which made him look beyond his years, and accorded well with its habitual expression of energy and intelligence, so characteristic of his New England kin. A country-born man, his manner and bearing had in them the freedom of the forest land, and the independence of a race able and willing to make their own way in the world, but they had also the graceful dignity and polished ease which good taste and good breeding alone can impart. His costume would have been thought considerably out of rule among the bewigged, bepowdered, and beruffled men of the period in London and Paris. Besides his own dark brown hair, worn in short tangled curls of na-

ture's dressing, it consisted of a suit of coarse grey cloth, such as women spun and men wove in country cottage and farm-house, stockings, then a largely displayed portion of man's attire, knitted of linen thread beside New England hearths, and shoes of home-tanned leather without a buckle or rosette. For he belonged to the Homespun Association—a society whose members were pledged to wear nothing that paid duty to the taxing government of England, and therefore had to eschew all imported goods.

So apparently did the girl by whose side he stood beneath the branching boughs; her kersey dress and straw hat, with linen ribbons, told as much, but their rustic simplicity only served to set off her surpassing beauty. In the last of her teens, and about the middle height of women, her figure would have seemed too slender but for the rounded elegance of its symmetry; a poet would have said that the rose and lily strove for dominion in her face, a sculptor would have rejoiced in the classic mould of her features, and many a modern belle might have envied the rich abundance of her chestnut hair. These were charms which time could steal and care destroy, but her fair face spoke of that over which they had no power—a mind at once noble and tender, gentle and steadfast, a woman on whose faith and constancy one might rely under all circumstances, but whose love only a brave, good man could win.

"You must give me a better answer than that, Constance," said the young man at her side; "I have played the game of fish for nothing long enough for any man in his senses; maybe I am not quite in mine where you are concerned; but here have I been thinking of nobody but you this many a year, for I have loved you as long as I can remember, ay, since we were children playing in the meadows and going to school together; and the boys used to laugh at me for following wherever you went. We are both old enough now to know our own minds, yet there is no engagement between us, no promise—at least on your side; you could let me slip to-morrow and marry somebody else with perfect propriety, as the old maids say. Maybe that is what you mean to do after all, but somehow I don't think it—no I don't, Constance, dear," he continued, catching the reproachful look she cast up into his face. "But I can't drift loose about you any longer; let me have something to hope for and hold by, now that things are so uncertain around us. Say you will be my own, this year, next year, any time you please to fix, only let it be a settled thing, and I will wait as patiently and faithfully as ever Jacob did for his Rachel. I wish Mr. Delamere would be good enough to take old Laban's way, as there happens to be no Leah in the case."

He sat down beside her on the mossy root, and took her small white hand between his two; it nestled confidently there, but her head drooped low, and her eyes were cast on the ground, as she said: "I can make no engagement without my father's consent, and that he will never give while you hold what he calls your rebellious principles. Indeed, if he knew the half what people say about you, he would never consent to see or speak to you. Sydney, is it all true?"

"Is what true, my own Constance?"

"That you are captain of the Minute Men; that you drill companies of students secretly every night; and that there is a warrant out against you for assaulting Government officers in the discharge of their duty."

"Yes, it is all true enough, my girl; the young men of our university and neighborhood who have pledged themselves to be ready at a minute's warning to rise in arms in defence of their country's rights and liberties, have done me the honor to elect me their captain, though they might have found worthier and abler men; and as I have picked up some knowledge of the military exercise from my own grandfather, I teach it to my fellow-students who have not had the same opportunities. As to the warrant, it was that made me ask you to meet me here, for I don't care to be seen at home, lest it might compromise my father, and I meant to tell you all about it; but my foolish heart's business rose to my lips when I caught the first sight of you coming through the trees. Well then, I was going home to my lodgings from the last of our college classes one evening last week.

and chanced to pass a house on the outskirts of Cambridge, occupied by a widow and her two daughters—old girls they are now, and not over well provided for, but the husband and father was colonel of the Massachusetts volunteers, and did good service in the old war, as well as your father and mine. I noticed that something was wrong about the place, and soon found out that a party of revenue men had forced an entrance, because a spy of theirs told them that the poor souls had bought some Irish linen from a pedlar whose goods never passed the Custom House; and there they were searching and frightening the unprotected women almost out of their wits. Of course they had the tyrant's law on their side; but I could not see the widow and daughters of a brave officer who had defended our frontiers against the French and Indians before I was born insulted by British underlings; so I just started off, got together a company of my Minute Men, turned the searching party right out of the house, and chased them home to their quarters, with some smart promises of what they might expect if we ever caught them disturbing an honest man's house again. It was after dark, you see, and between that and their terrors the rascals could swear to none of the company but myself; so the rest have fortunately escaped, and a warrant has been issued against me as the ringleader. I hear they mean to make an example of me; but never mind, Constance, it will soon blow over, for things must come to better or worse. In the meantime, I am keeping out of sight with old Vanderstock, the Dutch lumber-man, you know," and he pointed far up the wooded hill. "No fear of British spies venturing so high as his domain; and between my boy, Caesar, and your page, Philip, we can exchange messages and see each other at times, that is, if the fair Constance does not think the less of her own true man for loving justice and liberty almost as well as he loves herself."

"You know me better than that, Sydney. I think more of you now than I ever did. If they issued a hundred warrants against you, it was a brave, good action to protect the widow's home."

There was a look of loving pride in her flushed cheek and kindling eye—pride of him and his doings—that charmed the young man out of his sobriety.

"Spoken like a New England girl, my Constance!" he cried, throwing his arm round her, and drawing her close to his manly breast—"Spoken like a New England girl! I wish the action had been ten times better and braver, since you praise it. There is nothing like praise from the woman one loves; I will do something worthy of it yet."

"Ay, Sydney, but listen to me."

"I am content to listen to you all my life, Constance, as men must to their wives, they say."

"Well, never mind that; but tell me is not your father right in saying that you young men go too far in opposition to the British Government, and give the enemies of our country an opportunity to misrepresent and blacken the good cause in England?"

"Constance, he is not right. I say it with all reverence to my father, for which no son has better reason, he and the rest of the moderate party think that by calmly and prudently setting forth the grievances of the land, our British rulers will be induced to do us justice; but they are deceived. The foxes of the old country are too crafty for them. Craft and tyranny always go together. They mean to play fast and loose with us, and gain time till they get the arms out of our hands and garrisons into all our towns and strong places, and then govern us like so many slaves. We, the descendants of men who for freedom's sake came out from kin and country, and braved the perils of wave and wilderness that they might leave a heritage of liberty and religion to their children; we, that have in our veins the best blood of Saxon and Norman—yes, Constance, it was the best men of either race that sought these western shores, and left the residue, fit only to be governed by the licentious, mean, and tyrannical Stuarts, and the stultified House of Hanover."

How much farther the young student would have gone in this high-pitched strain of his age and party, it were hard to say; but Constance laid her small fingers on his lips with, "Stop! stop! Sydney dear, you don't know who may be walking in these woods. It is a mercy that my father never climbs so high. At any rate, he is engaged to-day with a parcel of books he gets every season from England, so I hope he won't miss me. What he would say if he knew I was here, or heard you just now, it frightens me to think of. He would call it treason at the very least."

"Maybe he would, Constance; but it is treason against ourselves, our country, and the memory of our forefathers, to live under the laws those old bunglers on the other side of the Atlantic have made for us—laws that dwarf our commerce, check our spirit of enterprise, and furnish every spiteful or insolent exciseman with a pretext for invading our domestic privacy and ransacking our houses. However, there is one comfort, their meddling tyranny cannot last long. Let slow or timid men say as they will, there is a spirit in the new generation that will strike for freedom some day, and the Minute Men won't be the last in the field."

"Sydney, Sydney, think of the risk!"

"Who regards risk for a good cause, when his heart is in it? I love my country even as I love you. What danger should deter me from standing on the defence of either? Nay, Constance, it was yourself that first made me a patriot, as far as I

deserve the name. I remember long ago, when we read the histories of the Greek and Roman heroes and the tales of the Swiss patriots together in our old summer-house, how your eyes used to kindle, and your breast heave with emotion, as you said, 'Such men had a right to be loved and honored.' It was those readings and sayings that bound me to the service of liberty and land. Would you bid me quit it now, when it bids fair to need every true man's arm?"

"No, Sydney, no;" and the young girl's face was lighted up once more with the glow of that early enthusiasm. "I love my country as well as you; I think I could die for it, woman though I am, and the daughter of an ardent old Tory, as your Minute Men would call my dear and kindly father; but"—and the light waned away from eye and cheek—"besides fearing all sorts of snares and dangers into which your hot haste might bring you, I have a suspicion that your devotion to liberty and land will some day make you forget your old playmate, Constance, and take to a more eligible girl, with a sturdy Whig for her father."

"You are jesting with me, my girl, as you did many a time before; but things should be serious with us now. Is it not far more likely that some Royalist officer, all fashion and finery, from his lace ruffles to his diamond shoe-buckles, with principles your father approves, and a noble connection somewhere in England, will send poor, plain Sydney Archdale out of sight and out of mind? Don't look so displeased, Constance; I was not quite in earnest; but situated as I am, it is natural to fear something of the kind: that is why I wanted a bit of a promise from you. If we were once engaged, I don't believe your father would part us. Give me your hand, and say you'll be mine."

"I cannot say it without his consent," she said, withdrawing herself a little as she spoke; "and it would be deceiving you if I let you imagine there was any hope of that. My father grows fiercer against the Whigs every day. Sometimes I fear his mind is getting unhinged on the subject, he gives way to such bursts of temper; but those who know him best say he has never been the same man since my poor brother met his fate. That is another bond on me, Sydney, another reason why I should be the comfort and support of his old age. It is creeping fast upon him, and I am his only child, named after my mother, whose grave he visits on the last day of every June—the one on which she was taken from him years before I can remember. Since then he has been father and mother both to me. Never was so much love and care bestowed upon a daughter from the time when he hushed me in his arms to sleep in stormy nights, and taught me to say an evening prayer beside my little bed. It has been his constant habit to gratify my wishes, and ward off from me every cause of trouble or annoyance. Sydney, I cannot, I will not disobey him."

"Well, I don't ask you to do that," said the young man, calmly; but a painful expression passed over his face; "only listen. My father means to call at the Elms to-day and sound Mr. Delamere; he may know nothing about the warrant. I am at Harvard College, you know."

"Yes; studying under the lumber-man," said Constance; but as she spoke the pair started to their feet, for a sound resembling nothing but that of a horse's hoofs on the hard upland turf seemed to pass just behind the tree on whose mossy root they had been sitting.

They looked around on all sides, but could see nothing, except the squirrels climbing up the boughs, and the wood-birds and insects flitting about in the quiet air.

"There is a horseman somewhere in our neighborhood," said Sydney. "One would not expect to see the like in these thick woods; but some travellers may have taken them for a short cut across the mountains, and to my certain knowledge the soil hereabouts has a singular power of conveying sound."

"Might it not be a mounted spy in search of you? Oh, Sydney, fly back to Vanderstock's clearing; and there is Philip's signal," said Constance, as a shrill whistle came up the slope. "Either he sees somebody coming, or it is time for me to go. I came here to gather the last of the blue-berries; what excuses one learns to make by dealing with Minute Men. Philip and Caesar are gathering them for me, to make good the excuse. But good-bye; I must go now."

She was darting away, for the shrill whistle sounded once more, but Sydney caught her by the hand. "You can't go without making me that promise," he cried; "say before we part that you will be my wife."

"I will if my father consents to it; that is the only condition. For your own sake, for my sake, go," said Constance. He pressed her hand to his lips, and fled up the slope with the speed of a mountain deer, while she turned downwards at an almost equal pace.

CHAPTER II.—THE TWO SQUIRES.

That part of the Connecticut Valley commanded by the picturesque range of the Holyoke Mountains, would scarcely be recognized to-day by the generation who dwelt there when Sydney Archdale and Constance Delamere held their stolen tryst on the wooden slope above it. It is now a summer resort of New England's rank and fashion—a scene sought out and lingered in by tourists from every part of Europe and America to which excursion trains bring their

thousands from all the northern towns of the Union, and prosperous or ambitious families send their children for education to its numerous seminaries, which are celebrated even in Massachusetts, the land of schools. The place had a different aspect and repute at the time of our story; it was not the primeval wild, for those fertile lands lying between the winding river and the towering hills had been among the earliest of the inland settlements made by emigrants from England.

The dwellings and the industry of civilized man had been there for more than a hundred years. Well-tilled farms, fruitful orchards, and comfortable homesteads covered the valley, and here and there indented the woods that clothed the sides of the mountains, herds and flocks grazed in the broad green meadows through which the Connecticut wandered; but everything was yet rural and rustic. The now large and beautiful town of Northampton, with its princely hotels, fashionable promenades, and far-stretching outskirts of villas and gardens, was then little better than a country hamlet. Its elder sister on the opposite side of the river Hadley, was a small old-fashioned township containing the same quaint but substantial houses, in one of which two signatories of Charles I's death-warrant remained hidden for many a year from the vengeance of his son, and the same plain Presbyterian meeting-house in which Cotton Mather's cotemporaries prayed and preached against the witches of Salem.

They presented a goodly prospect, nevertheless—valley and village, winding river and wooded mountains—for the fair landscape, like the fair face, can please without ornament. The inhabitants were thrifty and well-to-do, though in the whole district there were but two properties that could be called large, the one locally known as the Plantation, the other as the Elms. The former was situated on the level lands west of Northampton, and took its name from a grove of the sugar maple, which a former proprietor had planted there, intending to manufacture sugar and rum on a large scale. But the trees proved the only flourishing part of the business, and his successors had given it up long ago. The latter occupied a peninsula formed by the windings of the Connecticut, which enclosed it on the west, north and south, while on the east it was bounded by one of the wooded steepes of the Holyoke range, forming at once a majestic background and a shelter from the east wind, as unfriendly to health and vegetation in New England as it is in the old country. The place took its designation from two giant elms which overshadowed the proprietor's house, and were said to be the only survivors of an ancient forest that had filled the valley ages before it was trodden by white man's foot. Moreover, the public road to Hadley, Northampton, and townships still farther west, led through that property; and for crossing the river the traveller had his choice of ford or ferry, for bridge there was none. They were both fair and fertile estates, though the Elms got most commendation from passing people, on account of its beautiful situation, and pleasant, sheltered look. They came so near to each other at one point that only the Connecticut divided them, and there it had a convenient ford, yet diverged so far that neither house was visible from the other. They were both well-managed in the old thrifty and homely fashion, the larger half let out to leaseholding tenants, and the smaller farmed by the proprietor himself. The two houses were as much alike as the lands, built when Charles II. was king, they were now reckoned among the old mansions of the colony, but differed from the surrounding farm-houses only in having larger dimensions and better-kept grounds. There were the same high-pointed gables and steeply sloping roof, broad eaves, narrow windows, and wide porch; but while the farm-houses had in general but one story and an attic, they rose to the height of two; while the former had only two gables, they had four, with corresponding chimneys. In front of each mansion was a smooth, level lawn, and in the rear a large old-fashioned garden, the whole enclosed by thick but trimly-kept hedgerows, interspersed with fine trees that had been brought as seedlings from old England.

The first proprietors of those mansions and estates arrived in Massachusetts soon after Cromwell's "crowning mercy," the utter defeat of the royal cause in the battle of Worcester. They had been knights and landowners in their native Bedfordshire, of good descent, which, moreover, represented that of the English nation, for the one, Sir Ralph Archdale, traced his pedigree from a Saxon stock, and the other, Sir Gervase Delamere claimed a Norman ancestry. They were both zealous Presbyterians, however, and did knight's service in the Parliamentary army, but, like most of their sect, maintained the divine institution of hereditary monarchy (it was one of the points in dispute between Presbyterian and Independent at the time); and being in common with many honest men who had fought and conquered for the rights of Parliament and people, revolted by the execution of the king and the domination of Cromwell, they joined Charles II's Scotch expedition to restore himself. After a ruin of that ill-concerted enterprise on the field of Worcester, roundhead and cavalier, who had a hand in it, were happy to find refuge in the American colonies from the heavy hand of the Lord Protector; and the Bedford knights found it on the banks of the Connecticut. The southern settlements in Virginia and the Carolinas, peopled as they were by emigrant cavaliers, would not have afforded peaceful resting places to men who had charged on the king's army at Marston Moor and Naseby. The Puritan colonies on the Atlantic coast of New England, where Cromwell was prayed for as "the chariot of Israel and the horseman thereof," would scarcely have been safer quarters for those who had shared in the defeat of Worcester; but the luckless partisans were self-reliant and capable men. They had contrived to bring some capital and a few retainers from England, and retiring with these westward to the then wild and but half explored valley, they purchased from the Indian tribes, who still possessed it, a tract of land whereon to settle and begin life anew.

Years after, when the land had been fairly divided, built on, and brought under cultivation, when other emigrants had come to the valley, and villages with English names grown up in it, the Lord Protector went the way of all men, and Charles II. superseded the Commonwealth. These events brought great changes to England, but little or none to her American colonies, except that they sent new governors with special objections to old charters, which nobody much minded, and a large influx of refugees belonging to the overthrown party, to increase their townships and cultivate their wastes. All this was but the news of the day to Archdale and Delamere; the old country had neither hopes nor interests for them now; their family estates had passed into the hands of strangers by sale or mortgage, to meet the necessities of the case; and the sovereign for whom they periled and lost so much had already proved himself no friend to their Presbyterian people. On the banks of the Connecticut they were free to worship after the manner of their fathers. They had gained for themselves new estates and comfortable homes too, for both had married in the colony. Children were growing up around them, and the only consequence of the Restoration which they experienced, was the sudden appearance of a claimant to the land they had bought from the Indians.

Grants of land in America furnished a cheap and easy mode of rewarding the services and making up the losses of old friends; it was therefore a favorite one with the restored Charles, whose revenue never equalled his expenditure. But, like everything done for his old friends, those grants were so hastily and carelessly made, that they frequently served only to create conflicting claims, which in some cases were handed down to trouble after generations. Thus, an impoverished nobleman, who had followed the king's fortunes and been as little credit to any fortune as his majesty himself, Viscount Lavenham, was invested by letters-patent with the sole proprietorship of the tract occupied by the ancient brothers in arms, as clearly defined by the landmarks of mountain and river as if it had been one of the primeval solitudes of Massachusetts. Hopes had been entertained that the viscount would be induced to cross the Atlantic and settle on his new estate; but the gaieties and games of Whitehall were more to his lordship's taste. He therefore contented himself with sending a surveyor to mark its boundaries, and a steward to take possession.

It was not to be imagined that the stout knights of Bedfordshire, who had fought in every battle-field from Edgehill to

Worcester, would tamely give up the land they had purchased and reclaimed. Being just men themselves, they held their title to be one of the best in the colony, seeing it was bought from the original owners of the soil; but what a skilful courtier might have effected in Charles II.'s reign it were hard to say, if the viscount had not about the same time fallen in duel, and his steward and surveyor been soon after banished the Puritan colony for disorderly conduct.

Lord Lavenham's heirs took no active measures to enforce his claim. Perhaps they knew it was a business beyond their abilities, for all were poor, and most of them worthless; yet it was said their descendants never gave up hopes of the grant but got it renewed in every succeeding reign, with the help of ministerial or influential connections. Grants of the kind have been known to become available, by the dying out of a family, or the necessities of a thriftless heir; but if the noble and straitened house expected any such contingency, they were destined to wait for it long.

The Bedfordshire knights lived and died in undisturbed possession of the land they won from the wilderness. Archdale and Delamere after them continued to flourish, the former of the Plantation, and the latter at the Elms, their prosperity keeping pace with that of the colony, and their fair repute descending from one generation to another. They shared in all the notable transactions of Massachusetts, gave able men to their country's service by land and sea, and sent forth their branches to every province of New England, but the direct line of each remained unbroken in their first settlement, and mansion and estate had been transmitted from father to son till the time of our story.

On the same day and almost the same hour in which Sydney Archdale and Constance Delamere met in the silence of the woods to talk over the troubles that beset their youth and love, there sat in the second parlor of the Elms two men who might have held trysts in woodlands once; but the days were long gone by, for they were in the afternoon of life, and had left its morning dreams far behind them. They were both tall, robust, and still handsome, with a look of having seen the world about them. One would have guessed that they had done their deeds in the battle-field, the chase, and the ball-room, and could do the like to some purpose yet, in spite of the fast-fading grey. To know that they were colonists of English descent it was not requisite to hear their speech; the fair hair and Teuton-like face of the one, the dark locks and Romanesque features of the other, spoke of a race that owed its origin to different sources, as plainly as such contrasts do in the mother-country. Those two were the great-grandsons of Sir Ralph and Sir Gervase, the first settlers in that part of the Connecticut Valley, the present possessors of their estates, and the bearers of their Christian names, which had come down like heirlooms in their families, though in compliance with colonial custom the knightly style and title had been dropped long ago, and they were known as Squire Archdale and Squire Delamere, that English designation for a country gentleman being still retained in the democratic land.

The two squires were not more different in aspect than in character; both were men of honor and integrity, in the moral as well as the social sense, exemplary in private life, and faithful to their public duties, but there the resemblance ended. Archdale was a man of calm and considerate temper, clear judgment, and a thoughtful, inquiring habit of mind; the old and established never passed for the right with him, as they do with most men, nor could specious pretences glide over the unsound or unjust. Steadfast in principle, yet open to conviction, he was slow in coming to conclusions, but sure when once he had come; hence his verdict or opinions on any subject had a weight with his neighbors rarely accorded to those of a private man by the good people of Massachusetts, and he might have acted a leader's part in the provincial politics, but for a domestic, home-loving spirit, which made him prefer the peace of his own fields and fireside to the turmoil and responsibility it involved. Delamere had a warm heart, but a narrow mind. His impulses were noble, but his prejudices were strong, and their dictates had all the force of truth to him. There was no man more capable of a generous action, and yet there were few less likely to do justice to motives or opinions that differed from his own. He was not wanting in sound sense or shrewd observation, but those who once gained his confidence, if they happened to be skilful and crafty enough, might also obtain unbounded influence over him.

Notwithstanding so great a difference in the men within, the two squires were early and intimate friends. The bond which united their emigrant forefathers had indeed become hereditary in both families. Fostered by their near neighborhood and corresponding circumstances, that ancient friendship had come down their generations, growing warmer or cooler according to temperament and character, till in the fourth it seemed to have gathered strength from time. The heirs of the Plantation and the Elms stood by each other in school scrapes and quarrels, studied together at college, and made the grand tour of Europe, then thought requisite to complete a gentleman's education, in company. In that sore strife between England and France for the possession of the North American continent, which was really fought out and won for England by her colonists, and still talked of as the old French war, the two squires served together with equal valor and distinction in an independent regiment of Massachusetts men, and each held a captain's commission from the Crown. When the war was over they had retired from active service, laid the military title

aside with the uniform, applied themselves to the management of their estates, and lived brothers in peace as they had been in arms.

Their children played and grew up together as they had done; family troubles and festivities were shared by both households, and the domestic history of the two men had a remarkable similarity in every point but one.

Each had married for love, lost his wife by early death, and never changed his widowed state, but committed his home affairs to the care of a trusty housekeeper. Archdale had but one child—his son Sydney. Delamere had but one now—his daughter Constance; but there was a time when he had a son, Gervase, too. His marriage had been earlier in life than that of his friend, but there were seven years between the births of his boy and girl. Their mother left the one a child the other an infant. He loved and cared for them equally, but Delamere's hopes and pride were set upon his son, most people thought, with good reason—for Gervase was handsome and clever, of an honest, fearless, and yet kindly nature, that would not see wrong done to the meanest thing without doing his best to right it; and so precocious in growth, in learning, and in sense, that he was reckoned a man at an age when others were but boys. Gervase went to college when little more than a child, took his degree with honors while senior students were signing over the grades they had yet to obtain; and then, at his own earnest request, his father allowed him to accompany a relation of the family, who was a man of discreet years, and a merchant of high account in Boston, on a tour of Europe, which he intended to make for business purposes.

The travelers set out, and all things went well with them till they reached Versailles, then the abode of the French Court under Louis XV. and Madame Pompadour, and consequently the scene of lavish splendor, deep intrigue, and high play. The merchant had important affairs to transact there, and they remained for some time. The life and fashions of the place, so unlike those of New England, had the charm of novelty to young Delamere; his good sense and better principle kept him clear of its follies and vices, and his companion free from anxiety on his account. Thus when the latter was occupied with his mercantile concerns, he went about by himself, seeing what was to be seen, especially in places of public amusement.

One of these was the *Café du Monde*, a union of coffee and gaming-house not uncommon in Versailles, but on a splendid scale, and frequented by men of rank and fashion, where they met their friends, discussed the news of the day, and lost or won at the hazard tables. Among the company to be found there that season was a man of English birth, and still young, though not a stripling; he represented himself to be the son of a worthy planter in Jamaica. His card bore the name of Courtney Percivill, but beyond this nothing was known of him, except that he had wonderful luck at the tables. Young Delamere visited the house sometimes, but always as a spectator; and, one evening, while thus engaged, his attention was attracted by Percivill's mode of playing with a young French nobleman, from whom he had already won a considerable sum. A few minutes of close observation made it plain to him that the Frenchman was grossly cheated, and with his usual honesty and courage, he stepped forward and denounced the fraudulent trick in a voice loud enough to be heard by the whole company. The West Indian was caught in the act, and could not deny it; his wonderful luck was no longer a mystery, and, as it was thought beneath French honor to challenge so base a knave, the young nobleman and his friends contented themselves with making him refund his unfair winnings, after which he was by common consent ignominiously expelled the café.

Gervase Delamere got compliments and commendations enough to turn the head of many an older man; the young count vowed eternal friendship to him on the spot, while he vowed he had only done an honest man's duty. The affair was talked of in city and court; the Boston merchant was proud of his travelling companion; but three days after his pride was changed to grievous mourning. The inn at which they lodged, though a most respectable one, was situated in the oldest part of Versailles, and had been a small priory, which was suppressed for Jansenism in the persecuting reign of Louis XIV., and the priory's garden still remained in its rear inclosed by high walls, above which the backs and roofs of tall old houses could be faintly seen, and communicating with a narrow gate and passage with one of the crooked and ancient streets of the town. It was an overgrown, neglected place, but green and flowery in the beautiful spring of France, which had now come; and the country-bred young man, when weary of the show and bustle of the courtly city, used to retire with his book to a small arbor in its most pleasant corner. He had done so one warm evening—it was the third after his detection of Percivill—but lingered to such an unusually late hour, that the merchant went to remind him that bedtime was approaching. The good man found him still in the arbor, but the book had fallen from his hand, and he had fallen forward on a little table, stabbed to the heart by some villain who must have reached him through the tangled jessamine behind his seat.

It was the work of a determined assassin, and no robber. The few valuable poor Delamere had about him were untouched. It was done by surprise, for the rapier he wore in compliance with French custom had not been drawn. The gate communicating with the crooked street, and believed to be always locked, was found open, and there every trace of the perpetrator ended. The British Ambassador, the court, the

city and the police, all exerted themselves for his discovery, but in vain. Everybody suspected the West Indian, but he was nowhere to be found; and when inquiry and investigation alike failed to throw light on the dark deed, the heart-stricken merchant returned to New England with the remains of his relation's dear and hopeful son, to be laid in the grave among his kindred. The whole country lamented the young man's fate, and sympathized with the bereaved father. It was allowed on all hands that Squire Delamere bore up against his great sorrow as became a man and a Christian; but the stroke was heavy, and his mind never recovered from it. Great griefs or losses that come in middle life are apt to have more lasting and strange effects than those that fall upon either youth or age. Of the two squires, Delamere had been the most jovial and light-hearted, for Archdale was by nature a grave and serious man; but after the fate of his son was made known to him, the luckless father was rarely seen to smile. His temper, which had always been hasty, became irritable and obstinate, and his views of moral and religious duty grew austere and antiquated as those of his Puritan ancestors.

CHAPTER III.—THE OLD BOND BROKEN.

Years had passed since the grievous event recorded in the last chapter. The two that were children then were now deep in the romance of youth. The friends who had mourned with almost equal sorrow were friends still, but the discord of the time put a heavy strain on the old hereditary bond.

Calm and cool in his ways of thought and action, an advocate and example of moderation, Archdale was nevertheless known to be what his neighbors called "an out-and-out liberty man," a genuine democrat, who maintained the sovereign rights of the people on as broad a basis as ever did Greek or Roman when king and tyrant were synonymous titles with them. Sincerely attached to the land of his birth and parentage, with a boundless hope in its future and a firm faith in its resources, he took part with his American countrymen in their opposition to the royal prerogative, which in his opinion should never have existed, and to the parliament in whose election they had no voice.

Naturally inclined to trust in the long-established, and revere what elder generations had set up, Delamere was a Tory of the old nonjuring stamp, only his faith was pledged to a different dynasty. He believed in the divine right of George III. to tax his American provinces, thought the acts of the British parliament perpetually binding on all the colonies, and loyalty to his king the first duty of a Christian gentleman.

Many a warm but friendly controversy the two squires had on their respective opinions, particularly as regarded the points in dispute between the old country and their own. But as the dispute grew hotter, and tempers more inflamed on both sides of the Atlantic, they avoided the subject by tacit agreement, which indeed kept peace, but also brought estrangement between the old familiar friends. Without free speech there is no real companionship, and it was neither natural nor possible to keep silence on questions with which the land rang from side to side.

They became less frequent visitors at each other's houses; less frequent surveyors of each other's fields; and when they did chance to meet, there was a degree of constraint in the intercourse unknown to former days. Such constraint was upon them now as they sat in that pleasant room, with windows, full of flowering plants, looking out on the lawn, and commanding beyond it a glorious prospect of farm and woodland, hill and river, bathed in the soft haze and mellowed sunshine of the season.

There were grander apartments in the mansion kept for times of state and fine company, but that was the citadel of household comfort and convenience—half parlor, half library—where Delamere kept his treasury of books, old and new—for, like most American gentlemen, he had a cultivated taste and a genuine love of literature—where his father's escritoire, his mother's rocking chair, and his daughter's work-table, stood side by side, with other old-fashioned and memorial furnishings. Many a social hour had the two passed there at the open windows in summer evenings, or by the blazing hearth in

winter nights, and the genius of the place might have brought back to them those better times, but unfortunately in his last importation of books from England there was a pamphlet after Delamere's own Tory heart, which he had read and rejoiced over all the morning.

"There!" he cried, with a look of boundless triumph, putting it into Archdale's hand the moment they had exchanged greetings, "'Taxation no Tyranny,' by Dr. Samuel Johnson. Read it; you are welcome to the loan; and if that does not bring you to a right way of thinking, nothing will."

"Thank you, my friend, but I have read it—Franklin sent it to me by the last packet," and Archdale laid down the pamphlet on the table and took a chair close by.

"Are you convinced then?" inquired the master of the Elms.

"Yes, that the man has gone far out of his depth," said the other.

"What, Archdale! the author of the 'Rambler,' which you used to admire so much?"

"I do so still, my friend. In the 'Rambler' Johnson was at home with his subjects; he is a man of wit, of learning, and of piety, after his own fashion; but he is neither a politician or a philosopher; his mind is too backward for the one and too bounded for the other."

"Ah! you depreciate the great Samuel because he writes against your party. Upon my word, I thought you had more candor."

"Well, then, Delamere, I will do him justice now; the great Doctor is the man of the uppermost, he roars against us at the London dinner-tables because it suits George III. and his ministers; he would have roared against Luther because it suited Kaiser Charles and the Pope, and against the early Christians because it suited Nero. Perhaps that is overstating the case," said Archdale, for he saw a dark flush rising to his friend's brow; "but surely Delamere, you, as a New England man, cannot approve of the manner in which he chooses to speak of us, as if we were all the descendants of convicts, or men who had fled from their creditors, which must be intentional misrepresentation, for I cannot believe it is ignorance."

"I do not approve of it," and the squire looked half ashamed of his faith's defender. "If I were as clever as you, Archdale, I would write Johnson a smart letter on the subject."

"You could do it better than I, my friend; but it is not worth while; nobody could set a man right who means to stay wrong; and there is some allowance to be made, for how could he and the dinner-loving, four-walled, wordy generation, amongst whom he lives, from a true estimate of a people born and brought up among these grand old woods and noble rivers, where liberty breathes in every breeze and speaks in every echo."

"Ay, Archdale; but this talk about liberty will bring ruin on these provinces. I wish that you and other sensible men of your party would lay to heart Johnson's warning, for wherever the doctor is wrong be sure he is right there. If the hot heads among us drive this country into rebellion, they will bring upon us the vengeance of a powerful government, British fleets will destroy our ports, and British armies lay waste our lands."

"My friend, war always brings evil and destruction, and is therefore to be avoided as far as possible by every wise and good man. Yet if the questions between us and the old country went to the arbitration of the sword, we need not fear for the issue. There are yet living among us the men who fought at Fort Duquesne and Louisburg, at Niagara and Crown Point; in those fields, whether of victory or defeat, you know if it were the British regulars or our own men that did the most effectual service, for you and I were there, Delamere."

"I remember—I remember them well. It was our own men that did whatever was done; but that was for our king and his just rights," said the master of the Elms, with a sigh.

"No, Delamere, it was for our country—for our Protestant faith and for our English laws, to save them from the clutch of the Most Christian King and his advisers, temporal and spiritual. I recollect you and me discussing that

subject by a watch-fire on the bank of the Monongahela, the night after poor Braddock's retreat."

"You saved my life that day," said Delamere. "And you saved mine the day we met old Dieskau at Crown Point," said Archdale. "Ah! my friend, with such recollections, and years of kindly companionship at home and abroad to bind our hearts together, why should you and I dispute on matters of opinion, in which the best may differ? and no reasonable man can hold himself free from error. I came to speak with you this afternoon on a subject which more nearly concerns us and ours. Your daughter and my son have played and grown up together, and you probably know something of the affection that exists between them. I can vouch for its truth. On Sydney's part at least; but, like ourselves in the courting days long ago, my poor boy is troubled with jealous fears, lest some of the numerous young men who gather around Miss Constance wherever she goes, may some day step before him and carry off the prize. But it is his belief—or rather hope—that with your sanction he could push on the siege more vigorously, and foil them all at last. You may be sure I should be well content to see the ancestral friendship of our families cemented by the young people's wedding. The Plantation will be Sydney's, of course, when I go hence; but, my friend, it is not the union of estates I am concerned about. If you would prefer that a Delamere should occupy after you and perpetuate the old name at the Elms, I know you would not leave your child portionless with your own will, and should the like occur by any of those accidents to which human life and human plans are liable, it would make no difference to either my son or myself."

Delamere had listened with a grave and thoughtful look, which his face still wore as he said, "Archdale, Constance is the heiress of my estate, that is a settled thing; but I know not what to say about your son. I had a great opinion of him once; he seemed to be a good boy; handsome and clever enough to take any woman's fancy, and I could not have wished a better husband for my Constance; but all that appears to be changed. They tell me he has taken to the company of those seditious speech-making fellows that fill our colleges nowadays—braggarts and swaggers every one of them, unworthy of the name of students, and fit for nothing but troubling the country. I'll warrant it was some of them that waylaid old Yardley, the storekeeper, when he was going to Marblehead to get out of the Custom House some goods he bought cheap from one who was afraid to pay duty for them himself. The creature, is fond of bargains, you see. Well, they set upon him a mile or so from Hadley, took the Custom House warrant out of his pocket, tore it to shreds, and made him give three cheers for liberty on the open road."

"I don't think it did the old man much harm to give three cheers for liberty," said Archdale, smiling; "but my son and his fellow-students had no hand in that absurd transaction; it was one of the performances of Hiram Hardhead and his Green Mountain Boys."

"They deserve to be banished the province," said Delamere; but here the room door was suddenly opened, and a tall, muscular youth, with a handsome Irish face and a strong Irish accent, named Denis Dargan, and known to the neighborhood as the squire's best man, stepped in with, "Here's a paper for yer honor; the postmaster sint it wid his compliments, because the mail bags is just come in, an' his son give it to me among the stubbles yonder, where we're all winnowin' the wheat."

"Thank you Denis," said Delamere, taking the paper; "'tis Governor Gage's handwriting," he continued, glancing at the cover, and then opening it. "'Rivington's Gazette!' there must be something particular here; you are in time for the news, Archdale."

"Rivington's Gazette" was the government organ for all the American provinces; and there was something particular in it that day, for the first of the print on which Delamere's eye lighted was a strong article setting forth the misdeeds of the students of Harvard College, and more especially those of Sydney Archdale, including his raid on the revenue officers in the widow's house, and ample quotations from the young man's speeches in public and private.

Delamere read it quickly and silently; and the expression of mingled wrath and astonishment in his face almost prepared his friend for what was to follow as he handed him the paper, saying, "Look at that, Archdale, and tell me if you believe it to be true."

"For the most part I believe it is," said Archdale, when he had glanced over the article.

"And knowing that, you have asked my consent to such a fellow paying his addresses to my only child!" cried Delamere.

"Hold! hold! Sydney has compromised himself by his opposition to arbitrary and unjust laws, which, being such, no man is morally bound to obey. We cannot expect the prudence of age from hot and headlong youth; but he has done nothing for him or for me to be ashamed of," said Archdale, with a look of quiet pride that fairly fired up the master of the Elms.

"What, sir!" he cried, almost springing from his chair; "do you call his speech at the meeting in Faneuil Hall nothing? I tell you it is downright treason. Do you call raising an armed force and attacking the king's revenue officers in the discharge of their duty, nothing? I tell you it is open rebellion."

"Suppose it is treason and rebellion, both are right or wrong according to their cause; no tyrant was ever overthrown or

nation liberated without them; no patriot ever yet escaped their imputation. William Tell was a rebel against the Austrian Governor, who set up his cap to be bowed to in the market-place. The Protestant princes of Germany were rebels against Charles V., who wanted to burn them and their subjects for heresy. Our own great-grandfathers were rebels against Charles I., who wanted to tax the English nation without the consent of their representatives, as George III. wishes to do by us," said Archdale.

"Our great-grandfathers must answer for themselves; if they could reconcile their consciences to rebellion, I cannot, and will not, for all the Whiggish sophistry that any man may talk. Your son's doings are, no doubt, according to your principles"—Delamere was growing hotter every minute—"but I detest and abhor everything of the kind, and I tell you frankly that he shall never have my consent to speak or correspond with my daughter."

"The girl might speak and correspond with worse," said Archdale; his calm face had a look of sore displeasure now. "Do you mean to insinuate, sir, that my innocent child would ever stoop to disgrace herself and her family? I must say that is worthy of a Whig!" and Delamere laughed sneeringly.

A long life's acquaintance has let you know me better than to think so," Archdale was himself again. "What I meant, not to insinuate, but to say, was that she might chance to marry a less worthy man than my son. His morals are without reproach, his honor is without stain; man never loved a woman more truly and devotedly than Sydney loves your daughter; and all that can be said against him is, that he loves his country too; which is not wonderful, seeing he bears the name of one who fell fighting for liberty on a foreign soil, the gallant and accomplished Sir Phillip, and of one who died for it on an English scaffold, the noble and virtuous Algernon."

"You had always arguments enough at your fingers' ends, Archdale; but you will never reconcile me to such a match, nor my Constance either; she has too much respect for her father's principles, and I may say her own, to think of marrying a captain of rebels, for those Minute Men are nothing else. I know she has a mind above the like;" and the master of the Elms looked proud in his turn.

"Stop, my friend, there are none of us old heads that can truly promise for young people and their weddings." It was an injudicious speech of the prudent Archdale, for it roused a lurking fear in Delamere's breast that made him furious for a time.

"Sir, I understand you," he cried; "those who would insult their sovereign in public meetings, and trample on the authority of Parliament, would not scruple to turn a child against her father; but I defy your son's arts, and yours too. My Constance has been educated in sound principles; she will not break her father's heart for all your crafty endeavors, for I tell you, and it is my last word on the subject, I would rather see the girl in her grave—though I have no other child—than married to such a man as your son."

"You scarcely mean what you say, Delamere; you will think better of it hereafter; in the meantime let us part in peace;" and Archdale rose and held out his hand.

"No, sir," cried the angry master of the Elms, stepping back; "I will never shake the hand of a man who has threatened me with the disobedience and desertion of my own child, to be brought about by his—that is all I have to say."

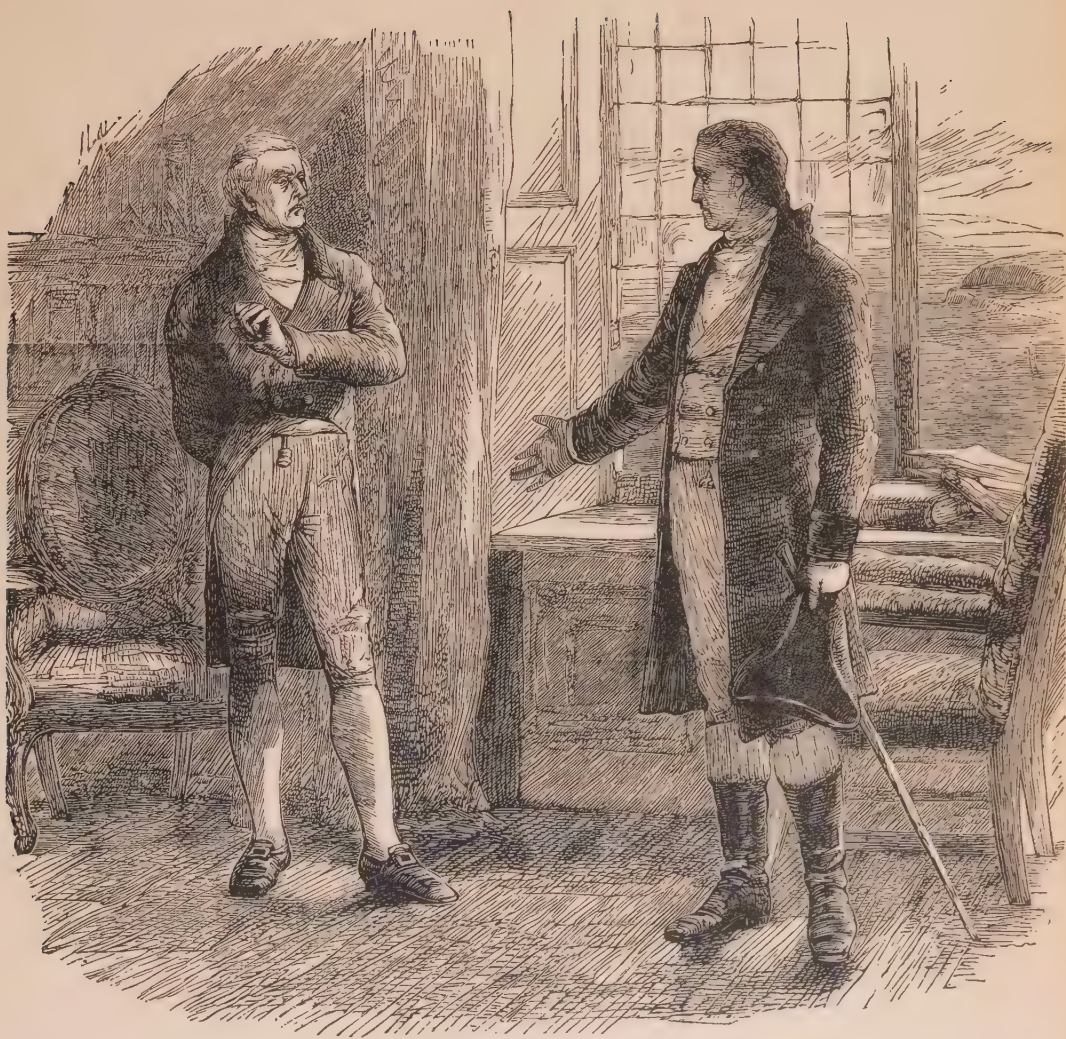
Archdale made no reply; the blow on his heart was too heavy for remonstrance, and without a word or sign he turned away, found the outer door open, and walked quickly from the house.

CHAPTER IV.—THE PROPHET OF THE GREEN MOUNTAIN BOYS.

Scarcely was Delamere left alone, when the fiery mist of anger began to clear away from his brain. He sat down for a minute or two, and tried to persuade himself that he had only acted as became a gentleman under such provocation. But it would not do; all the good and noble qualities of his old and trusty friend, all the loving-kindness that had been between them, came rushing back on his memory with a remorseful conviction that he had carried the quarrel too far.

Without any fixed intention, but vaguely hoping that Archdale might yet be in sight, he rose and walked out to the porch. The bright farewell of the Indian summer sun was gilding the distant heights and glowing on the quiet river; but there was no receding figure on the path by that river side which led over the ford to the Plantation.

His daughter had not yet returned from gathering blue-berries in the Holyoke woods with her page, Philip. His men were all occupied on the high-lying stubble ground, winnowing the new wheat by favor of the soft west wind, for fanning machinery was not then known in New England. The maids were milking the cows in the meadow, and there was nobody about the house but himself and his trusty housekeeper, Hannah Armstrong, a plain, sensible-looking woman, who belonged to the Society of Friends, and had all the trustworthy qualities



PARTING IN ANGER.

and soberness of mind and manner which so frequently characterise its members. She was well advanced in age, but her sturdy strength had not yet failed, nor was her dark hair tinged with grey, though she had seen strange and terrible things in her time—for Hannah had been the wife of a backwoodsman in Michigan; and as she sat there in her drab gown, white apron, and whiter cap, sewing, and singing in a low voice an old hymn at the best kitchen window, Delamere recollected the day of hard frontier fighting eighteen years before, in which he rescued her from the hands of an Indian chief, who had killed her husband and her three children, burned their cabin, and was carrying herself away captive to the western wilds.

Archdale was fighting by his side that day, and with the memory of it a strong impulse came over him to go at once to the Plantation and try to heal the breach that was made between him and his friend. It might have been done, for the first lapse in friendship is easily restored, and things might have gone differently with him and his; but what trifling neglect may tell on the mind and the life of man!

As Delamere turned from his long and unperceived look at Hannah, his eye was caught by a figure which few who saw it once would not recognise again.

Hard by the low hedge which fenced the lawn, on the side where a small stream wound its way to the river, was the stump of a large and ancient tree which had sent up shoots like young saplings, and with an arm around one of these, and a foot on the stump, while the other dangled in the air, stood a man whose body and limbs seemed at once so slender and so loosely hung, as to give him a reminding resemblance to a large spider. His head was beyond the common size, and, besides the remains of an old leather cap, was covered with matted and bristly hair of a dark color; his face was equally large, and embellished by a straggling beard of the same hue, on which no razor had been exercised for some time; he had an uncommon length of nose, eyes resembling those of a ferret, a wide mouth that appeared to be always speaking, and a complexion that defied both sun and wind to give it a deeper or more husky brown. His dress consisted of a red woollen shirt, a jacket made of the remnant of an Indian's buffalo robe, buckskin continuations that had seen hard service, leather leggings in the same estate, and rough shoes resembling the Indian moccasin.

The individual of this prepossessing appearance, had a name to match, for he was Hiram Hardhead, one of those eccentric characters that crop up in all times of public agitation, and echo in their own odd fashion the voices of their age and land. He styled himself the Prophet of the Green Mountain Boys, from an association corresponding to that of the Minute Men, but belonging to a lower stratum of society, and less advanced districts, for it consisted of the young men inhabiting the clearings and shanties scattered along the sides of the Green Mountains, a range of high and then forest-lad hills on the western side of the Connecticut Valley, and some twenty-five miles from the Hoosac, or Holyoke chain, which forms its eastern boundary. The Green Mountains were Hiram's habitat, but he was seen and heard in all the adjacent country, as far as his antecedents were known. He had been a bee-hunter, a trapper, and a backwood-trader's man; but latterly Hiram discovered that his calling was to preach and prophesy, which he did without ceasing, but fortunately it was not on religion, but politics. If he had ever received any education, it was not a liberal one, yet Hiram was perfectly acquainted with the whole controversy between England and America, the character and policy of public men on both sides, and the views and motives of contending parties in his native province. He was known to be no coward, but the chief weapon of his warfare was that generally thought peculiar to the fair sex; for Hiram had a tongue of such power and volume, that once set on it left gainsayers no chance. He said he had got the inward light, or liberty, and could talk down any ten Tories, or Britishers either; moreover, Hiram was a far-out cousin of Hannah Armstrong. The good woman was by no means proud of the relationship. He had been born and brought up in the same sect, but was long ago cast out of its communion for his erratic ways, yet the prophet retained his early style of speech, which, together with backwood phrases and words of his own coining, made a remarkable mixture.

Stumps of trees and top rails of fences were his favorite places, as well for prophesying as for rest. Whatever caprice made him choose that station at the Elms, it was evidently for the latter purpose. Hiram had produced from his ample breast-pocket the pipe and match, flint and steel—a smoker's complete outfit in those days—when Delamere caught sight of him; and all the squire's recent indignation against liberty-men blazed up anew.

"What business have you in my grounds, you idle, seditious fellow?" he shouted. "Begone this moment! I wonder you are not ashamed to show your face after tearing up the warrant from his Majesty's Custom House."

"I have come to prophesy against thee, thou brother of Herod and Pilate—thou confuscated fag-end of British iniquity!" cried Hiram, in a far louder shout, swinging round on the stump, and leveling his pipe at him, as if it had been a pistol. "The stink of thy pride has gone up into the nostrils of the Massachusetts people, like the unsavory scent of a seven-year-old polecat at high noon in midsummer."

"For shame, Hiram Hardhead!" said Hannah Armstrong, looking out at her unboasted kinsman; "thou hast no right to speak so to friend Delamere on his own land. Go about thy business, and learn better manners."

"I will also testify against thee, Hannah Armstrong, though thou art my cousin," responded Hiram; "yea, I will lift up my voice like a trumpet"—he was certainly doing so by this time—"because thou dwellest in peace and pleasantness with that barking bloodhound of British tyranny. Thou guidest his house; thou holdest therein quilting and apple-bees; thou preparest for him buck-wheat cakes and dough-nuts, bacon and beans, and such-like confections, and settest them before him in the midst of his high jinks and rampagious rigs agin the rights and liberties o' the great American people, when thou shouldst rather lift up thy testimony and heave the dishes at him."

Delamere had first thought of going in for his pistols; but when Hannah undertook the combat, he thought it better to let the woman and her cousin settle it; and, with that wise intention, he was turning into the house, when his eye fell on a stout cane in the corner of the porch. The temptation to chastise Hiram's insolence on the spot proved too great for the poor squire's wisdom, and, catching up the cane, he rushed out with "You unmannerly fellow, I'll teach you how to talk to your betters." The blow he aimed at the prophet over the low hedge would have been something to remember, but Delamere had not calculated on probabilities. By a dexterous stoop and a backward swing Hiram avoided his cane, and the squire, having over-reached himself in the attempt, lost his balance and came down, partly on the hedge and partly on the ground.

"Behold, thou art brought to the dust with a mighty down-come and a thunderin' kerwollup," cried Hiram, performing a sort of war-dance with one foot on the stump and the other in the air, but still keeping judiciously out of reach, "in the midst of thy high-flyin' randyness and tryin' to leather the righteous, wherefore thou art an emblem of the vursal overthrow and upturnin' of all Toryism in this land. Also from thee I will take up my parable concernin' that man George, in the rotten old country; his name is Whelps, and truly a cross-grained, ill-conditioned, pig-headed whelp he is."

Here the prophet was interrupted by a shout of, "By the powers, I'll give you a parable for onsultin' the squire, yer world's wondher!" and Denis Dargan, flourishing a flail, his favorite weapon, bore down upon him at the other side of the hedge. Hiram was not disposed to await the onset of the strong and active young man from the Emerald Isle; he took a spring to clear the stream, but fell headlong into it. Dargan's flail made the water splash yards high the next moment, and his loudly-expressed intention to break every bone in the prophet's skin, was escaped only in some degree by the latter scrambling out of the stream and flying at top-speed towards the Holyoke woods, dripping like a drifting rain-cloud, and hotly pursued by his furious assailant.

It was proverbial that nobody could overtake Hiram Hardhead, the man was so perfectly constructed for running. Denis kept him in sight for some time, and cheered on the chase with, "Whoo there, the Balyrna-

carrot boys, only let me get hould o' ye!" But on the high-wooded ground the prophet disappeared from his vision, and was finally lost among the thick-growing trees. "Nothing living could catch that creature; but bad luck to the matter it is, for he's his own any way," said Denis, after a long look round him. "Howsomever, he won't come back in a hurry. I got two or three wallops at him wid the flail."

"Vat you be seenen arter, my friend?" said a man's voice from the slope above; and Dargan saw, standing in the shadow of an old tree, a figure so short, stout and sturdy, that it might have passed in uncertain light for one of his own logs set up to dry, for it was no other than Vanderslock, the Dutch lumber-man, whose life was passed, like others of his trade, in the mountain forest solitudes, hewing down trees, stripping off their branches, and sending their trunks down the nearest stream that had communication with the seaward river on which stood a port or town, where they might be sawn into planks, or otherwise prepared for the use of the carpenter and builder. Vanderslock's trunk-hose and leather doublet would have been a study for a painter given to Dutch groups; so would his face, which was round and full as one of his native cheeses, and never wanting the ornament of a short pipe, for some people said he slept smoking; but it was not wanting either in an expression of mingled honesty and shrewdness, which made him true in trust and safe in action.

"I'm looking for that strange baist, Hiram Hardhead," said Denis, who in common with all the country round, was well acquainted with the lumber-man; "he's been playing his pranks on the squire, screechin' abuse over his hedge, till I could hear it every word; and it would be ill my comin' to stand still and hear the like."

"So would it, mine friend; you are the squire's pest man, set in great bower and drust;" and Vanderslock came down and stood confidentially by his side.

"More nor that," said Denis, "he tuck me into his sarvice three years ago, when I was an orphan boy, saved by a marcful despinsary out of a shipwreck in Boston Bay, where my parents and two brothers was lost. And a good master he has been iver since."

"He is von very big Dory," said the lumber-man.

"An' the more's the pity; I'm for liberty myself. Maybe, if it begins here, it will get the length of poor Ireland at last."

But Dargan's patriotic aspirations were cut short by the Dutchman saying in a hasty whisper, "Mine friend, did you see a man on a horse's back 'mid holsters, and a valise on him, hereabouts?"

"Not a bit of him I saw. Are ye afearred to be tuck unawares? Is it a private still ye keep up there?" said Denis, in a tone as low.

"No, no, mine friend, dere is noting to still; only somebody tell me dere was a man of dat sort galloping about de woods. I only come down to look for mine frau's squirrel. Oh, mine friend," and the Dutchman sent a puff of smoke into Dargan's face with the force of the sigh he drew, "dere is no peace mid the fraus, if you don't give dem all der own villas and vays; dat vill be made clear to your understandment ven you get into vedenlock, vich indeed has much driers for de batience and vortitude of man."

"No doubt of it. Father O'Reilly, over in Ballymacarrot, used to say the women were the 'Ould Boy himself,' but we couldn't do widout thim, which showed great understanding in him, seeing he was a priest, and had nobody but his niece about him, in course. Howsomever, I must go home. Good evenin', Misther Vanderslock; I hope ye'll soon catch yer lady's squirrel," and Denis turned away, singing—

"A fair maid once I courted,
And, oh, but she was throe."

But at some distance he looked back, where the puffs of the Dutchman's pipe could yet be seen, and added, "Well done, old broad breeches, ye have something afout ye don't want me to know; but I'll make it out wid continwal watchin'."

CHAPTER V.—THE STRANGER FROM ENGLAND.

As Dargan went singing down the wooded hillside by one path, the squire's daughter made her homeward way by another, less rough and steep, and leading by a more circuitous route to the Elms. She had no companion but her page, Philip, a bright-eyed negro boy of about thirteen, well grown for his years, and handsome

for one of his African descent, having something of a Spanish cast in countenance and carriage, which proved him in some degree related to a European race; but Philip's origin was not exactly known. The captain of a West India ship had brought him to Boston in his early childhood, and contrived to forget and leave him behind—it was thought by design—at the inn where he had lodged; and Squire Delamere, happening to be in the provincial capital at the time, and hearing of the child's destitute condition, with his wonted charity took him home, and placed him under the kindly rule of his daughter Constance. Under that rule Philip grew up to robust boyhood, and became Miss Delamere's page, an attendant most congenial to her active habits and the homely life of New England, where every lady was her own maid. She taught him his prayers, his manners, and his learning; in consequence Philip could read well, could speak good English, with scarcely an alloy of negro *patois*, and was liked by all the household as a good-natured, well-behaved, and very handy boy. It was true that he gave early promise of being a negro beau of the first degree; great was the brushing and much the pomatum bestowed on his fleecy locks, to give them the appearance of a white gentleman's. He chose to be called Master Delamere by negro boys of inferior position, for Philip could properly claim no name but the Christian one—a case common enough with his colored brethren—and no relation, friend, or owner ever appeared to claim him, so Delamere he was likely to remain, as neither the squire nor his daughter would grudge him that piece of gentility.

Never was knight's squire or lady's page in the days of chivalry more faithful and devoted than was Philip to his young mistress. He looked after her pony, he worked in her own private flower garden, he would have gone any distance to get new shrubs and roots for it, and wherever Constance went Philip went also. Like pages and squires of old, he stood high in his lady's confidence. The solitary girl, without brother or sister, naturally made no stranger of the faithful boy, and as the sight of the gallows in full preparation for him would not have made Philip disclose one of her private affairs, he knew them all, and was deep in the interest of Sydney Archdale.

Lady and page were walking home together now, carrying a basket of blue-berries between them, and talking confidentially.

"Where did you see the horseman first, Philip?"

"Up among the pines beside the old bear-traps, miss, standing up in his stirrups and looking away through the trees. Cæsar saw him too, and told me that, in his belief, he was a traveler who had come over the mountains by the open slopes that lay to the right of Vanderslock's clearing but had lost his way in the wooded parts down here. He moved away, and we lost sight of him for a little while, but the sound of horse's hoofs made me look up, and there he was within a stone's-throw of us, his horse standing still and he looking all about. I don't think he saw either Cæsar or myself, we were so hidden among the bushes in the hollow, and what he was looking for I don't know, but in a minute or two he turned his horse and rode away in the direction he had come from."

"What was he like, Philip?"

"Like a man from England, miss—a government officer, or something of that sort. He rode a fine horse, and had everything handsome about him—he was handsome himself for that matter."

"Are you sure it was not Mr. Archdale's friend, the Quaker merchant, riding over the hills to see him?"

"I am sure he was no Quaker, miss; I would know that man anywhere?"

"Why, Philip, have you seen him before?"

"I have not just seen him, but you'll laugh at me, Miss Constance—there's a dream I have sometimes about a large house and a plantation—not like Mr. Archdale's place or the Elms—and a lady on horseback with a habit like your own, but she is not like you herself, and the gentleman that rides with her is the man I saw in the wood."

As the boy spoke, Constance recollected that years ago, when he was new at the Elms, Philip used to talk, with the faint and confused remembrance of early childhood, about living on a plantation where limes and sugar-canes grew, the horse his mother used to ride, and the man from England, who seemed an object of special terror to him.

"It is a singular dream, Philip," she said; "and still more singular that you should know the horseman from it."

They were turning out of the wood at this moment, and into the open road leading straight to the Elms. The mansion and estate were clearly to be seen from the spot, and Philip looked half frightened, so indeed did his mistress, for right before them, and as if waiting their approach, a horseman had drawn his bridle.

"There he is!" whispered the boy, and he had described man and horse with remarkable accuracy. The latter was a fine creature—coal black, and of a make that might have served for a cavalry charger. The former, though not in uniform, had a military style of dress and a distinguished air; he sat his horse well, and seemed above the middle size; a man of about thirty-five. English born, for the solid firmness of the old country was about him, but this complexion had been tinged by the sun of a brighter climate. His face was of the Delamere type but had no resemblance to the family. Those who saw only cut and color would have called it handsome, for the features were good and set off by an abundance of almost black hair, which, in traveler's fashion, he wore without powder, and he evidently thought himself too young for the fast-declining wig; but there was something at once sensual and sinister about the mouth, and a cold, hard expression in the otherways fine eyes, especially when he was silent or off his guard.

The latter happened to be the case that evening; he was deceived by the homespun attire and the basket of blue-berries, and turning upon Constance a gaze of that bold and intrusive admiration with which the gallants of the old country were apt to regard low-born beauty, he said, "Good evening, my dear, I am waiting for you, you see, because I know that such a face as yours must own a tender heart. Will you, out of Christian charity, show a poor stranger, who has been astray for hours in these bewildering woods, the nearest way to Northampton?"

Accustomed to the true and chivalrous respect for womankind, which is still the most honorable and distinguishing trait of American society, the New England girl was too indignant to show him either anger or contempt, but as to her great satisfaction Denis Dargan emerged from the wood at the same moment, she said quietly, "Denis, be good enough to show that gentleman his way to Northampton," and walked on without taking any further notice of his existence.

The traveler looked what in common parlance is called scared for an instant; but he was a man of too large experience to be long put out of countenance, and when Denis had finished telling him that he must ride down to the river and keep along its bank till he came to the "foord or the ferry, and take which o'thim plased him best," he thanked the young man with patronizing civility, and then said looking towards the Elms, "To whom does that fine property belong?"

"To Squire Delamere, sir."

Dargan did not notice the strange expression that passed over the traveler's face as he spoke, the words seemed to have fallen on him like a blow; but recovering himself instantly, he said in a still more bland tone, "And who is that young lady who passed just now with the boy and the basket?"

"Miss Delamere, sir; she's all the children the squire has now, and the estate is to be her inheritance. I'm sure she deserves it, for a kinder lady never broke the world's bread, and any man may see she's a born beauty," said Denis.

"She is, indeed," and the traveler smiled. "I have never seen a lovelier face. Are you in the squire's service?"

"I am, sir; they call me his best man hereabouts." Dargan never hid that light under a bushel.

"A good master, I suppose?" said the traveler.

"A better never breathed the breath of life, it's proud I am to sarve him night and day," and Denis would have gone on sounding the squire's praise, but the traveler stopped him.

"That's right, my man; a good master deserves good service. But I must go, drink my health with this," and he handed Denis a dollar; "may be I will come back to this quarter some time, if it were only to get another sight of your young mistress;" and putting spurs to his horse, he galloped away.

"Troth," said Denis, surveying the silver, "that's a downright generous gentleman, and isn't he tuck on wid Miss Constance; howsomever she's not tuck on wid him, by the way she passed by cowlid and careless. She'll be thrue to young Archdale if lords and dukes come axin her; but I'll be bound the squire would rather have that gentleman for a son-in-law, for it's my opinion he's a king's officer;" and Denis turned homeward to report the adventure to his confidants at the Elms.

The soft, misty night was falling when Constance reached home. The household people were gathering in from field and farm-building, but her father was pacing the grounds alone, like one who could not rest. His misadventure with Hiram Hardhead, little as it related to the business, had altered his mind as regarded seeking a reconciliation with Archdale. It was another phase of Whiggish doings, an evidence of what loyal men might expect, if treason and sedition were allowed to be talked by the educated classes and acted by the ignorant. Moreover, Delamere had a secret consciousness that his own conduct in the transaction had been foolish, and the figure he cut was rather a ridiculous one. Would not Archdale laugh at him? Would not the whole country do the same? for Whigs and liberty men abounded in the valley of the Connecticut; but he would keep aloof from them all, and stand by his principles.

Then his daughter; what steps should he take to guard her from the wiles of Sydney Archdale? Time was when he had encouraged the idea of a match between the two, and thought his friend's son might stand to him in the stead of his own lost Gervase. The young man had not taken to sowing sedition then, but the case was altered now. He had told Constance so already; he had plainly shown her the evil tendency of Sydney's ways. "That has turned her mind against him," said the simple squire to himself; "she never mentions his name of late; my girl knows a disloyal man will never make a faithful lover or husband, and she can get a better match any day. The warrant against him is just a matter of thankfulness, it will keep him out of this country, so he can have no opportunity to waylay and flatter her out of her senses, as a cunning villain like him would; and when I show her that article in 'Rivington's Gazette,' Constance will give the fellow up entirely."

Alas for that ever-recurring conflict of opinions and inclinations between the old generation and the new. Sometimes sad to see, the seed-time of bitter memories that will come when heads are grey and graves are green, sometimes working so silently and far beneath the surface as not to be observed, but evermore renewed by time and tide, as sure as the spring of the one approaches the leaf-fall of the other. It took the hidden form between Constance and her father. Delamere was deceived, as most fathers are; but it was from affection and not fear. The master of the Elms, with all his arbitrary principles as regarded sovereign and subject, was in practice one to be beloved by all about him. As he half guessed at times, there was not a soul of his own opinions in the household, yet man, woman, and boy would have stood by him against any adversary, as promptly as his Quaker housekeeper and his Irish best man did against the prophet of the Green Mountain Boys. That love took a deeper root in his daughter's heart, and made her take an untruthful way that was foreign to her nature, rather than vex or grieve him. Constance would not mention Sydney's name now, though it was more than ever in her thoughts, for the young man was in danger; would not take his part, though she was proud of his recent doings; and would not express her views on the subject, though, like most New England girls of her age and station, she had pretty clear and decided ones, because they were contrary to those of her father. When he was silent and out of sorts at supper that evening, terror took hold of her lest her meeting with Sydney in the wood had been discovered. When he showed her the article in the "Gazette" next morning, and bade her read it, she promised to do so, but got out of the room as quickly as possible; and when he saw her again, and inquired if she did not think Sydney Archdale a very wicked young man, Constance, though sincerely ashamed of herself, evaded his question.

"I was sure you could not approve such doings, my girl," said the satisfied Delamere; and yet I was

sorry to see such an account of my old friend's son. I wish I had not seen it either, for it made me quarrel with Archdale; so child, you must remember not to go near the house, nor let our people borrow anything; mind, I don't say against lending, and if Archdale speaks to you, don't turn away, or be dry with him, for old time's sake."

"Quarreled with Mr. Archdale, father! I thought you would never do that." Constance knew what business had brought Sydney's father to the Elms, and the chasm which that quarrel must open between Sydney and herself.

"Once I thought so, too, but people of opposing principles cannot long agree. These times will split up many a friendship as well as ours; but there, child, say no more about it, some things are better forgotten." And the squire turned away with a look so sad and heart-sore, that she could never again venture on returning to the subject.

That was not the only cause of trouble Constance had. For days her faithful Philip could get no sight of his correspondent, Cæsar, though he made many an ingenious excuse for going up to the Holyoke woods; indeed, the squire's turkeys and pigeons seemed to have taken a general turn for flying that way, and Philip's tame hare had to be sought for in the same direction. Still, no sight of Cæsar, and no intelligence of his master could be gained; and lady and page took terror to their hearts at last, for in farm-house and hamlet all along the valley, there was talk of strangers who had suddenly appeared in the neighborhood, and whose business there was not exactly known. Constance, of course, thought they were government spies in search of Sydney Archdale, but her fears on that point were unexpectedly set at rest.

She and Philip had ridden to Springfield, the nearest town of any importance, to make some purchases of her own at the stores, spend the evening and stay for the night with her maternal aunt, an old lady, who had a pleasant house there, and was always partial to Constance. On their return in the afternoon of the following day, they found the Elms in an unusual bustle and excitement. A dinner of more than ordinary expense and elegance was in course of preparation; the best parlor was opened as on occasions of ceremony, and the cloth laid on its long and rich mahogany; the lady's drawing-room—as such state apartments were called in the colony from their first introduction, being supposed the special domain of the lady of the mansion—stood open also, and in its doorway stood Squire Delamere. He had rather a fancy for a fuss at times, and caught his daughter by the hand the moment she entered. "Constance, my girl, go at once to your own room, take off that vulgar homespun, and dress yourself in the best of your silks. A gentleman in his Majesty's service, who has come with a company of engineers to reconstruct Fort Frederick, which is to be garrisoned, and will, I trust, keep the Green Mountain Boys in order, called on me this morning with a letter of introduction from Governor Gage, and I have invited him and the other officers of the company to dine with me this evening, when of course, my daughter must appear as becomes her rank; in short, child, we may have good company here often, and I hope to see you in that dairymaid's dress no more."

"Dost thou not think that there will be vanity enough in the child's head, friend?" said Hannah Armstrong, who chanced to be within the room removing linen covers from the well-kept furniture.

"Vanity or not," cried Delamere, "I will have my daughter dressed like a lady, as her mother used to be, before this Whiggish nonsense got into our people's heads. Go, Constance, like a good girl, and let these gentlemen from the old country see what your father has to be proud of in his grey-haired days."

Constance went up to her room much astonished and somewhat relieved in mind. Those engineers and their followers were the strangers about whose business there had been so many contrary reports in the neighborhood. They had not come to look for Sydney Archdale, but to rebuild Fort Frederick, a picturesque ruin on one of the Green Mountain heights, twenty-six miles north-west of the Elms. It had been erected in the time of the old French war as a defense to that side of the province, named in honor of George the III's father, Frederick, Prince of Wales, and was considered a place of strength till one of Montcalm's officers reduced and ruined it.

Governor Gage sent a newly-arrived English captain from New York to command the reconstructing company, and formally introduced him by letter to Squire Delamere, for whom it was the governor's policy of late to profess great respect and esteem, as the only loyal gentleman in the Connecticut Valley.

When Constance Delamere, by the paternal command, arrayed herself that evening in the purple brocade, point lace, and pearls of less self-denying days, it must be confessed that her toilette was a great deal more carefully made, and her mirror more frequently consulted, than usual. Before the interesting rites were quite completed, she caught the sound of horses' hoofs, and by a peep from her window saw six gentlemen in uniform alight at the door, and heard the cordial and kindly greeting with which her father received them.

Constance waited till the bustle of arrival had subsided, took a last look at the mirror, and then descended to the drawing-room. Nature had bestowed on her that rare degree of beauty and grace which sets off dress and lends a charm to ornament, and well might a flush of pride light up the squire's face, as, in the stately and ceremonious manner of his generation, he introduced his daughter to the chief of the company, Captain Devereaux; but in the queued and powdered, gold-laced, and epauletted gentleman who bowed before her with such admiring respect, Constance recognized the traveler of the Holyoke woods who had asked the way to Northampton.

CHAPTER VI.—THE SQUIRE'S GUEST.

The captain had been introduced by Governor Gage as the nephew and heir-presumptive of Viscount Lavenham, K. C. B., and he gave Miss Delamere on that occasion her first lesson in the arts of high life; for had her face never come within his vision till that moment, he could not have looked more unconscious of their meeting on the road, or of her recognition.

The rest of the company were duly presented; but Captain Devereaux was the only distinguished figure among them. The remainder were four young men of the average military and commonplace type, and such as may be found in force at any mess-table, and one veteran, Lieutenant Gray, at least as old as the squire, and with nothing particularly striking about him, except that he looked, and was, a man of sense, and a frank and fearless soldier.

As her father's principal guest, and specially introduced to the family, it was natural that the gallant captain should be particularly attentive to the squire's daughter; and as Constance was not a girl to be met with every day, it was equally natural that the captain should be struck with her appearance. Struck, and attentive too, Captain Devereaux was; from the moment of his introduction to Miss Delamere he constituted himself her *cavaliere servante*; he conducted her to the dinner-table, took a seat by her side, of course, addressed his conversation to her entertainment chiefly, and paid those polite attentions to her wants and wishes which old custom prescribes as the most effectual means to win a lady's grace. Perhaps from the knowledge that they were his subordinates, the other officers left him master of the situation, which must have been dull for the young men, as there was nobody else in the form of women present but Hannah Armstrong, who had presided over the family table in festival or in private for many a year; and a rare sight it was for them, in the midst of their gold lace and scarlet, to see the worthy housekeeper, drab homespun, Quaker cap and all, saying grace with as much self-possession and more earnest piety than many an army chaplain. The squire showed his approbation by letting things take their course, and conversing a good deal with the young officers and Lieutenant Gray. The latter had served in the old French war, and been present at most of the actions where the New England regiment, in which he and Archdale held commissions, was engaged; and some of his remarks brought back thoughts of old times to Delamere as they sat over the wine.

They did not sit long; the temperate habits of their Puritan ancestors still prevailed among the gentry of the land, and the captain, whose eyes and heart seemed to have followed Constance as she retired with the Quakeress, was the first to suggest an adjournment to the drawing-room. There he stood, wrapped in admiration, as it were, and at the same time turning the leaves

of the music-book, or doing any other little service, while, at her father's request, she played on the harpsichord and sang a few of the songs then in fashion.

Of course they were all delighted, and so was the squire; at parting he told every man of the company, and especially Captain Devereux, how pleased he should be to see him often at his house, if he would be good enough to drop in just in a friendly way, for they were homely people at the Elms; and the captain was particularly impressive in his promise to avail himself of the invitation.

"What do you think of him, Constance?" said the somewhat elated father, as soon as they were alone. Constance did not well know what to think. Devereux's conversation had entertained and amused her; he had seen a good deal of the world, had lived in fashionable society, and got that surface gathering of clever remark, witty saying, and curious anecdote that always charms the young and untraveled.

Moreover, the captain could compliment and flatter as nobody did in the Connecticut Valley, for it was done by look, insinuation, and suggestion. What home-bred girl could be insensible to such homage? But there was something about him that broke the charm and dissolved the spell. That cold, hard look in his eyes had corresponding thoughts and words that escaped him, it seemed, by accident; that vicious sinister expression in the lower part of his face was borne out by occasional remarks that he always explained away; and somehow, though she could mention no proof or reason for it, Constance had an impression that he stood in a sort of unaccountable fear of both her father and herself.

With these strange and indefinite thoughts contending in her mind, the girl could only answer, "Captain Devereux? He is a very fine gentleman."

"Yes; and I thought that was the very thing for you demoiselles. In my youth men could not be too fine for the ladies; but, really, Constance—" and Delamere looked inquiringly in her face, "if you don't think much of the captain, you must be strangely ungrateful, for I am sure he thinks a great deal of you."

Constance thought of the meeting on the Holyoke road, but she did not tell it, for the times had taught her prudence. It would be certain to bring down a lecture on the disgrace of a gentleman's daughter appearing in that vulgar homespun, to be taken for a low-bred country wench by every stranger who got a sight of her; so she said nothing, and the captain was allowed to drop for the time; but ever after as the girl tried to unravel or understand the mingled impressions he had left on her mind, there rose before her in strong and decisive contrast, the manly frankness and undoubted worth of Sydney Archdale.

Late in that night, when Delamere's company were gone, and he and all his household long retired to rest, when lights were out in all the neighboring homes, at the hour when deep sleep falleth upon man, Squire Archdale sat alone in a small room of his own house, the rest of which lay as dark and silent as the dwellings around. Archdale called that room his sanctuary; to it he was wont to retire in times of domestic perturbation, "bee evenin's and house fixin' days," for Mrs. Martha, his housekeeper, was a woman of the uncompromising regulation type, and those were apt to be heavy dispensations. It was situated on the ground floor and opened from the best parlor; but it had another door of glass, serving also for a window, and opening on a shrubbery which skirted that side of the mansion, and sheltered the sanctuary alike from the winter's blast and the summer's sun. The old books in which Archdale delighted were arranged in convenient cases there; the portrait of his early-lost wife hung above the mantel-piece, and his family papers were stored in a cedar cabinet, occupying one corner, and said to be the first of its kind made in the colony. A bright wood fire blazed on the hearth, for the nights were growing cold, and hoar frost was seen in the mornings; close by was a comfortable supper-table laid for two; but Archdale sat alone reading one of his old books, and occasionally looking up at a clock that clicked in the opposite corner.

Its hands were pointing ten minutes to two, when there was a light step outside and a tap at the glass door. The squire rose quickly, drew aside the thick curtains which allowed no light to be seen abroad, undid the bolt, and his son Sydney stepped in. The young

man had got a careworn, out-of-heart look since the day when he sat beside Constance Delamere on the moss-grown root of the old tree, but he smiled when his father clapped him on the back, as if he had been still wearing a pinafore, and said, "Welcome, my boy; I have waited for you, you see; sit down, and let us have supper together, for it may be some time till we sit at the same table again."

They sat down, and Archdale reverently said grace—he never omitted that good old custom of his father's—and then the supper and the talk went on between them.

"You mean to go and see your old friends the Mohawks, Sydney?"

"Yes, father; I think it will be safest course, since the men in power are taking such backward notes of my doings, and keeping up so hot a hunt. Vanderslock and his force have got frightened; the poor souls have been kind, but I believe they would be glad to lose sight of me now, so I mean to take my hunting shirt and rifle, and thread my way through the woods and over the hills to the Mohawk country; I know it well, for I have gone that way before. Shingis, the old sachem, will make me welcome, I have no doubt; and I can live as well as any Mohawk till there is more work for active men in this country, which I think will not be long."

"I fear it will not, Sydney; my mind misgives me that nothing but open war can come between us and Britain."

"The sooner it comes the better, father."

"Don't say that, my boy; it will be a war of brothers; may they be pardoned who are urging it on; but it is our duty to maintain our liberty, and may He who alone is righteous defend the right."

"Amen, and that is our side; but father, I must not stay long, for there is the first cock-crow."

"Well, Sydney, there is no danger yet, let us drink each other's health in this fine old port; it will keep the damp night air out of your heart, as Mrs. Martha says."

These drinking customs, rare in New England, the colonists had inherited from the old country.

Archdale filled the glasses and they drained them, with hearty good-wishes, and a warm shake-hands across the table; the self-reliant, forward-going ways of the one, and the quiet wisdom of the other, had long made the squire and his son more like familiar friends than men of different generations are apt to be; but when that kindly ceremony was finished the senior said: "You got the letter I sent you by Vanderslock, and you saw the ill success of my mission to the Elms, Sydney."

"I did; and I think Mr. Delamere has behaved very ill to you, father."

"He has; but never mind that, my boy. Gervase Delamere was a trusty and loving friend to me many a year before you young people came forward to embroil the old heads with your hasty tricks and courtships. That is spoken in jest, Sydney; Delamere and I might have had the same dispute if you had never been concerned; our times and opinions would have given the cause, and he is not the man I knew him once. Strange and heavy trials, though they make no change on the surface of a man's life, are apt to sap the foundations of the mind, so to speak, and make it lose the balance never to be recovered on this side of the sky. He has had such a one, therefore let us pass over all that happened that day between him and myself except to consider from it our own duty to him and his. Sydney, that is the point on which I wished to speak with you before we parted; for who that part know when they may meet again? You know what poor Delamere said about his daughter being beguiled and won away from him; Sydney, I can understand that better than you will till you have children of your own, and I ask you, for conscience, for honor, for true love's sake, to give up, I do not say all wishes, for that is impossible, but all endeavors to gain over Constance Delamere till you can gain her father too; promise me that, my only son, who never yet broke a pledge or promise, and I will bless you and let you go."

Sydney sat silent for a minute, and then said, as if thinking aloud, "She cares more for her father than for me."

"She knows his love longer and better than yours, Sydney; that is a good reason why you should not try to part them. Delamere's daughter would be a worthy choice for the best man in New England, yet I wish you

had never set your affections on her," said Archdale.

"I wish so, too; but it is done, and cannot be undone. I can never love another woman as I love Constance Delamere. Whether she ever cared for me or not I can't tell; there is no making out some women," said Sydney; "but what you say is wise and right, father, and I give you my solemn promise that I will never again attempt to woo or win her without Mr. Delamere's consent."

"It is enough," and Archdale rose and laid his hand on the black clustering curls of the young head that bent in reverence beneath it. "The blessings of our Father in heaven rest upon you, my dear and only son; be with you in the wilderness and among the homes of savage men, and bring you back to my house and heart in peace!"

"The same blessing be with you, father, and fear nothing for me; I shall do very well among the Mohawks, and steal back sometimes to see you." That was all Sydney could say; at the door they kissed each other, and the young man sped away through the quiet night. His father stood listening to the sound of his steps until it was lost in the distance, and then looked up to see the first faint whiteness of the dawn stealing over the Holyoke summits, where they rose above the Elms.

Nobody in that mansion knew how or when it happened—that a bunch of the wild flowers that linger latest in woodland dell and dingle, was thrown by some dexterous hand into the little balcony at Miss Delamere's bedroom window, where she was sure to see it first, among the favorite plants that were tended every day by her own hands.

Constance did see it with a welcome in her eyes and in her heart. Sydney Archdale used to send her such wild wood-gathered bouquets by her page Philip, with a note in the centre, carefully bound up and nestled among the flowers. There was a note in this one, too, but how brief and cold it seemed compared with the many that had come in the same fashion—"Farewell, Constance; I cannot go without saying so, yet go I must, and it is best I should. May you be happy, whatever becomes of me!"

She read it over and over again; it was strangely worded; it was also vague, and told her nothing of his reasons or intentions. He had doubtless heard of the quarrel, perhaps took his own father's part against hers. The sense of justice Constance had would not allow her to blame him for that; but was his love so easily chilled and changed? Mr. Delamere had said hard things of Sydney and the cause to which he was devoted; would that make him willing to give his daughter up after so many vows and professions? was Sydney's pride so much stronger than his affection for her? or had he found out at last that the prize was not worth the difficulties of the pursuit?

These were the questions the young girl asked herself in her half knowledge of what had passed, and the only answer she could find was that ancient one, men were deceivers ever. Maybe it was her deserving for keeping trysts with him and listening to his tales and vows, when she should have been better engaged, and more to her father's liking. Well, she would be wiser for the future, and think of him no more. Constance burned the note, and was going to throw the flowers out of the window, but their wild beauty and the memories that came with it forbade her, so she put them in a vase, and looked at them night and morning as they faded, like her own dream, away.

CHAPTER VII.—THE NOBLE SUITOR.

Had Captain Devereux kept every promise as faithfully as he did the one to avail himself of the squire's general invitation, he would certainly have escaped the guilt of broken vows. Almost every second day found him dropping in at the Elms on one account or other. His ingenuity in finding excuses was remarkable, but the best and most frequent he had was to consult Delamere on subjects involved in the reconstruction of Fort Frederick. The squire prided himself on his knowledge of military engineering, particularly the art of fortification, of which he was an amateur, and had studied Vauban and other authorities. It was not in man—at least, it was not in Delamere—to be insensible to the flattering fact that a captain in his majesty's service, and the nephew of an English peer, to whom an important

work of the kind had been entrusted, should be coming at all hours of the twenty-four to request his opinion regarding plans and projects for strengthening the place. As a natural consequence, the captain grew in favor with him, was always made welcome and pressed to stay, while the other officers of the company, though occasionally invited to the Elms, were generally left out of sight and out of mind.

When they had reached this state of intimacy, Devereux found another subject on which to consult the squire. He had shared a family dinner one day, and as the door closed on the retreat of Constance and Hannah, and the gentlemen were left alone, the captain drew a deep sigh and said, "Ah, Mr. Delamere, you are a happy man!"

"I don't know that," said the squire; "I have had my share of troubles and trials in this world, as most people have, I suppose."

"No doubt of it, my dear sir; but what I meant was that you are happy in having such a daughter," and the captain sighed again.

"Oh, Constance is a good girl, and rather handsome, I think;" Delamere was looking into his glass and endeavoring to take the matter coolly.

"Good!" cried the captain; "she is an angel; handsome—her beauty is beyond comparison! What a sensation it would create in the court circle or the fashionable world of London; but it is not in those scenes of gaiety and splendor that the whole amount of her worth could be known. No; it is in the home, which her presence would make beautiful and her smile fill with sunshine. Mr. Delamere, a man gets tired of tossing about the world without a home or a helpmate, as your good ministers say. That is my case. I have seen a good deal of high life—a good deal of government service, too; but there is nothing like domestic peace and affection when one has come to years of discretion. In short, I mean to settle as soon as possible; that is, if I can obtain the woman of my choice. With my connections one would have many a chance of pairing off to advantage, you know, but I could not, squire—I could not marry except I loved, as I do now, with my whole heart. You will excuse the unceremonious manner of a brother-in-arms—is your charming daughter engaged?"

"Not to my knowledge," said Delamere, "and I am sure Constance would do nothing of the kind unknown to me."

"I am certain she would not, and I, as a man of honor, could not think of addressing her without first consulting you. Be kind enough to tell me then in plain terms," and the captain's voice took a tone of tremulous anxiety, "may I ask—may I hope—for the honor of her hand?"

"Well," said the squire, considerably nonplussed for a suitable reply, "they say in New England, that a man courts or fights best for himself. My Constance must be wooed and won like other fair ladies, I suppose. She is not a girl to go without offers, for besides the fortune of her face, which her looking-glass tells her of every day, Constance will inherit the Elms. I have no other heir, and fortunately the estate was not entailed when I lost my son; you have probably heard in what manner from Governor Gage."

"Oh, yes—yes; do not recall such sad—" As the captain spoke a weird groan sounded through the quiet and now darkened room, for the night was falling, and he sprang from his chair with such a bound as almost to upset the table.

"Why, captain, I did not think you were so easily alarmed," said Delamere, as soon as pure astonishment would allow him to speak. "That is a peculiar sound though; it comes through a minute crevice in the frame of the window there when the wind happens to be turning," and he rose and rang for the candles.

"Ah, the wind does make strange sounds through crevices. I wonder you don't get that one filled up; it quite startled me, it was so like the cry of an owl. You must know I have a strange antipathy to that bird of night. They tell me I was frightened by one of them in my infancy at our family seat in Suffolk. And as you have mentioned Miss Delamere's prospects," and Devereux drew his chair nearer to that of the squire, "of course, that is the very last thing I should consider, but I think it right to acquaint you with mine. As the eldest nephew of the present Viscount Lavenham, who has lived a bachelor, and is now an old one, I am heir to the family estate and title, but have not much else to count



THE OLD HOME ON THE CONNECTICUT RIVER.

upon, except a reversionary interest in—let me see, I think it is twenty thousand pounds on the decease of two maiden aunts, both far advanced in years.” Seated there in the full light of the wax candles, and looking so military, distinguished, and *debonnaire*, nobody would have thought him the man to be startled by a moan of the wind in the deepening twilight. “The dear old tabbies,” he continued; “long may they enjoy their dividends! They never meant to be in the least hurry getting out of my way to the principal; they had quite a different plan of providing for me, which they used to propound when I was a youngster, spending my holidays with them. What do you think it was, squire?”

“Buying you a commission, I suppose?” said Delamere,

“Something much better. Only look at this, I brought it to show you as a curiosity, but the subject of our conversation banished every other from my mind,” and Devereux produced from one of the capacious pockets in his broad-skirted coat of the period a roll of parchment which he handed to the squire.

The latter opened it, and saw for the first time what he had heard his father, his grandfather, and their contemporaries of the Archdale family talk of, among their old tales and traditions of the settlement—namely, a grant of the lands now called the Elms and the Plantation, by his most gracious majesty, Charles II., to Cecil Devereux, Viscount Lavenham. An ancient map appended showed the lands in their wilderness state on both sides of the Connecticut; but the grant had actually been renewed by George III.

“It is a curiosity,” said Delamere, when he had read the document; “but of course of no effect. How strange it is that the king and his advisers should accept such a map made in 1602, and then at fault; for Archdale’s great-grandfather and mine were in possession of the estates, and had reclaimed and built upon them.”

“My dear sir,” said the captain in his most persuasive tone, “kings and ministers have so many near-hand affairs to occupy their attention, that they are apt to lose the knowledge of things abroad. I don’t know what induced my uncle to get the grant renewed; it strikes me Lord Granville did it before he went out of office to please the poor old maidens; they always set apart the tract of land in America, for my sole use and benefit. The parchment is certainly of no effect as regards you, Mr. Delamere—a man of sound principles, and a loyal subject; but there are those whom it might concern if the British Government should come to a sharp reckoning with these provinces.”

Delamere gave him an astonished stare. “It may be my dullness, but really I do not understand you.”

“There will be a great change when you become dull, squire; but the fact is, we of the old country, who have connections in court and cabinet, get a knowledge of intended measures and arrangements of which the public do not yet dream. That happens to be the case with my family; we have always been intimate with the Granvilles; my mother was related to Lord North, and my uncle, the viscount, is one of his oldest friends. From these sources I have certain information of what no man but yourself, my dear Mr. Delamere, should hear from me,” and the captain assumed the air of a man who had a solemn secret to impart.

“Should the plotters of treason in this country proceed to open insurrection, as it is expected they will in the course of next year, for the ministry are better acquainted with their secret councils than they imagine, the rebellion will be put down with a strong hand, and government will take the opportunity thus afforded to curtail the powers and pretensions of large proprietors throughout the provinces, because the king himself considers them the most dangerous class of his American subjects. As his majesty said in a private conversation with which he honored my uncle in the royal gardens at Kew, ‘their large estates and retinues have made them so insolent, that they fancy themselves independent of the crown; but we will change all that.’ So they will, Mr. Delamere; depend upon it, charters and patents shall be done away with, as they were in Charles II.’s time, a little before that grant was made, I believe; titles and proprietary rights shall be strictly investigated, and some high heads shall be shorn of their grandeur. That George Washington, who makes such a fuss in Virginia, will find his wings

clipped in Mount Vernon; the fellow has a demesne there that might serve the Prince of Wales. And that squire on the other side of the river, Mr. Delamere, I understand you have given up his acquaintance; let me congratulate you on having done so in time, for he is a more than suspected man; his son is known to be a downright rebel; forfeiture and confiscation always follow attainers of treason, and an ancient grant would, of course, take effect in favor of any faithful servant of the crown.”

“I hope you are mistaken as regards Archdale,” said the squire; though I did give up his acquaintance on account of his son’s doings and his own opinions, there was a time when I had not a better friend in the world; and I would do anything yet to prevent his coming to such loss and ruin.”

“My dear sir, there is no mistake in the matter. I have seen compromising evidence in his own handwriting, and things must take their course. Neither myself or any of my family would wish to entirely dispossess a man so situated, though, of course, our claim is worth considering; and a loyal gentleman like yourself might be able to secure a remnant of the Plantation for him—that is, if you had influential connections in the old country. Have you any such, Mr. Delamere?” and the captain endeavored to look disinterested.

“No! my connections are all on this side of the Atlantic—born Americans, every one,” said Delamere.

“Ah, that is a little unfortunate—I mean, my dear sir, in view of the chances and changes which probable events are sure to bring. The parchment cannot directly affect your interest in the Elms; if it could, my own hands should thrust it in yonder fire”—the captain made a gesture worthy of any stage hero—“but should anything happen to cut short your life, which Providence prevent, yet if the like did happen, and your daughter were left young, solitary and unprotected, myself at a distance on his majesty’s service, and therefore, unable to take her part as I would do with my life, who can say what use might be made of a grant so recently renewed? No man can vouch for his relatives in such a case; and, between ourselves, I would not vouch for mine.”

“No man can well vouch for another; but this instrument could not affect the interests of my child any more than mine,” said Delamere. If I were called away, law and justice should still remain. Constance is my direct heiress, and we have relations in every part of New England who would maintain her right to her father’s property.”

“No doubt they would, and my fears are groundless; one is apt to have such fears on account of those in whom one is deeply interested. But, squire, this old curiosity—thing of the past, I may say—has led our talk away from the question nearest my heart; may I hope for the happiness of becoming your son-in-law?”

“If you can get my daughter’s consent, captain, you shall have mine; from what I know of you, as well as what you have told me of your prospects and connections, I think Constance might make a worse match; but not for the King of England would I put any pressure on the inclinations of my only child. Success to your wooing is the best I can say; but you know the proverb, ‘A faint heart never won a fair lady,’” and Delamere smiled encouragingly.

“I know it, my dear sir; and with your good will I fear nothing. Ah, how can I thank you for this kindness to a stranger!” but there was a look of disappointment in Devereux’s eyes. “The best way to show my gratitude will be to prove myself worthy of it,” and he wrapped up the parchment and returned it to his coat pocket, then glanced at the timepiece, and rose hastily, exclaiming, “Dear me, I did not think it was so late; how time flies in such conversation, squire! But I must go now, and get up early in the morning to see if that stupid engineer can understand your suggestions about the escarpment.”

The hospitable Delamere pressed him in vain to stay a little longer, and intimated that Constance might come in to bid him good-night. She was assisting at one of Hannah’s apple-bees that evening; these institutions were conducted with great quiet and propriety by the prudent Quakeress—but the captain responded, “Not for the world, my dear sir, would I disturb the young lady in the midst of her domestic duties,” and, after a most friendly leave-taking, he mounted his horse and rode away.

The bee was still in progress, and Delamere sat alone, thinking of all that had passed between him and his visitor. The captain's proposal was not unexpected; his undisguised admiration of Constance, and the marked attentions he paid her, had prepared the squire for something of the kind. Neither was it unwelcome. Delamere had a true Tory's veneration for aristocratic rank; the lords of England stood next to the king, and must forever stand above the commons in his system of things. Here was the prospect of a noble alliance, which would make his Constance a viscountess some day, with all the rights of privilege and procedure, and all the glory of the Lavenham coronet. "What a lucky chance that she has entirely given up Sydney Archdale," thought the simple squire; "no disengaged girl would think of refusing Devereux, if he is some years older, he will make the more discreet and steady husband." Then Delamere found himself wishing that the captain's family were better known in America, and that his past history could be learned from some acquaintance more familiar and less reticent than Governor Gage. But he had evidently a true love for Constance; he had begun by asking her father's consent—that was like a man of honor, and after the squire's own heart. He had spoken with good sense and propriety on every point, and stated his prospects and expectations with modesty and exactness; but there was one incident of the evening which did not please the squire so well, and that was the production of the lately renewed grant. The captain had said it was only a curiosity, but his own sense told him it must be null and void; but Devereux's insinuations regarding the use that might be made of it in case Constance was left fatherless and unprotected in the troubled times that seemed approaching, coupled with the explicit information he appeared to possess on government plans and intentions, gave the subject a weight and importance in his thoughts which Delamere could not well define.

A man better acquainted with society as it existed in the old capitals of Europe would have been warned by the over-assumption and unaccountable perturbation of the noble suitor, that there was something remarkably wrong. But Delamere had spent his life on the skirts of the primeval forests, among a farming and pastoral peoples honest and open-hearted as himself.

Whether the renewal of that grant was a complete forgery, or had been obtained by secret influence to serve the ends of the Lavenham family, could never be ascertained. Certain it was that official men in England were singularly misinformed regarding things in America, whether by their friends or enemies it were hard to say; but they committed strange mistakes in consequence; and it was equally certain that proceedings akin to those which the captain set forth, were believed to be contemplated by the king and his ministers.

Neither they nor their Tory friends on both sides of the Atlantic were capable of discerning the signs of the times. It was not the determined struggle out of which a nation was born that they expected, but a hasty insurrection of rash and inconsiderate men, to be easily crushed, and thus give fair occasion for the establishment of arbitrary power throughout the American provinces. Entertaining a similar view, Delamere accepted the statements of his intended son-in-law as a ministerial revelation. It was an alarming one for a native of the land; but the zealous partisan is never a patriot. The royal prerogative must be maintained, the Acts of Parliament must be enforced. Why should not the promoters of treason pay the forfeits they had incurred? and then he thought of the captain's assertions regarding Archdale. Was it not his duty, for old friendship's sake, to warn him privately of the risk he was running? How many a generous impulse does petty ambition stifle! The squire's second thought was, that if he did so, it might lead to the old friendship's renewal, a thing to be avoided now; lest thereby Archdale's son might find an opportunity to wile away Constance from him and the brilliant match intended for her. Must he, then, leave Archdale to his fate? Here Delamere was startled from his dark brown study, for a light hand was laid on his shoulder, something savory steamed under his nose, and, looking up, he saw Constance holding there a splendid specimen of the doughnut order.

"I knew you were alone, father," said the laughing girl, "and I brought you this from our bee: it was myself that made it."

"You are always thinking of your old father, Constance," said the squire, taking up the little present and gazing on it with admiration. "There is a doughnut fit for a prince. Won't I finish it when it is cool enough! Always thinking of your old father, and yet you will be leaving him some day for a fine young man with no grey hair on his head."

"No, father; I will never leave you for any man," cried Constance.

"What, not for one that wears a scarlet coat, and may be called my lord before he is much older? Constance, I will tell you a secret;" and Delamere threw his arm about her slender waist, and whispered in her ear, "Captain Devereux has this evening asked you from me in marriage. What is the matter, my girl?" he continued, almost frightened, for his daughter's face had turned deadly pale.

"Nothing, father; only I don't want to marry the captain—I don't want to marry anybody, but stay with you all my days. Surely you would not send me away?" said poor Constance.

"No fear of that, my own daughter; you are all I have to care for in this world. But every girl means to marry, or ought to mean it, and where could you get a better match than Captain Devereux? He is a gentleman by birth," and Delamere proceeded to enlarge on the captain's expectations and connections—on the prospect his wife would have of being called the Viscountess of Lavenham, and your ladyship—of being presented at court and taking precedence of all untitled people in every assembly, public or private, of sporting arms on the panels of her carriage, and a coronet everywhere; but his daughter's look only grew more sad and troubled.

"Father," she said, at length, "I don't care for these things, and I don't care for the captain."

"Why, my child?" demanded Delamere; and there Constance was puzzled. Her impressions of Devereux remained the same as they were on the first evening of their acquaintance, but she could not translate them into words, for they were derived from the instinctive perceptions of the mind, and not from any outward cause or reason that could be quoted.

"Father, I don't know why. I may be foolish to say so, but I do not and never shall like him. You know I would do anything to please you, but, father dear, don't bid me marry Captain Devereux."

Her look of mingled terror and distress was too much for the kindly squire. He drew her closer to his heart, and said, "Constance, I would not bid you to marry the King of England, except you were willing; but, as you don't know exactly why you dislike the captain, your mind may change, as ladies' minds often do. Your dear mother refused me twice, and accepted me at the third asking. I don't think she ever regretted it; but we will say no more at present; there is time enough for you to consider the captain's case and come to a conclusion one way or the other."

CHAPTER VIII.—THE CAPTAIN'S PROGRESS.

Delamere had no doubt that the ultimate finding would be in the captain's favor; he thought the prospect of a title and a coronet must weigh with his daughter as it did with himself, and therefore left the business to time and Devereux's wooing abilities. The captain appeared to be of the same opinion, and now began the siege in due form; his attentions were more marked, his compliments more direct, his visits to the Elms more frequent, and undisguisedly those of a lover.

Who can win the heart that will not be taken? Constance was polite to her father's new friend—ready to sing and play for his entertainment when the squire wished it; she shared his company and converse on all occasions when it was necessary that the daughter of the house should be present; but no Spanish maiden, under the eyes of a watchful duenna, could be more coldly circumspect in her conduct towards him. The girl had a good deal of self-command for her years; she did not see his love-making glances; she did not hear his tender insinuations; sighs and languishing looks were fairly lost upon her, and she contrived never to be for three minutes alone with Captain Devereux.

"Where there's a will there's a way," says the proverb, and the reverse is equally true with ladies of all ages—where there is not a will there is not a way, nor

any possibility of making one, as the nephew of Lord Lavenham found. It was in the father's good graces he advanced, not in those of the daughter.

Older in constitution and habits than he was in years, Devereux was a more suitable companion for the squire than for his young heiress. He had lost the dexterity of youth in the witching arts of love, if he ever had the like; and whatever the captain's experience might have been, it was not in courting ladies hard to woo and win. His ill-success appeared to drive him to his wits' end at times, though either pride or policy prevented him from owning it. Delamere was surprised and occasionally annoyed at it too, and that troubled poor Constance. But it was not the only cause of trouble which the captain's wooing brought to the household of the Elms.

The work in which Devereux was engaged was obnoxious to the whole country, and more especially to the dwellers on the Green Mountains. Fort Frederick had been serviceable in its day, but that was with the past. The land had rest from her ancient enemies now, and the only purpose of its rebuilding must be to overawe and curb the popular discontent with government measures. The most judicious officer would have found it a difficult affair to manage, but Lord Lavenham's nephew was the right man to make bad worse. He began by giving himself airs of superiority, as a high-born man from the old country and an officer in his Majesty's service—the readiest way to offend the independent New Englanders. He proceeded to spread verbal manifestoes against Whigs, Liberty Men, and Green Mountain Boys, generally winding up with what he intended when the fortress was rebuilt and himself in command of the garrison.

The consequences were such as might have been expected; the country people set their faces against him and his company. Not one of them could find quarters in farm-house or cottage, but had to build shanties and cabins for themselves; no native mechanic or laborer would lend a hand to their work for any wages; no farmer would lend wagon, horse or ox to bring building materials for any price. When they attempted to purchase provisions in farm-house or dairy, the men ordered them out of the premises, while the sturdy women armed themselves with fire-irons, kitchen utensils, and the like, and chased them for their lives.

Instead of being warned by these experiences of the mountain people's metal, Devereux exerted himself to make reprisals. He applied for warrants against the women who had chased his men, but the latter could not or would not identify their fair assailants for fear of being laughed at; and the country justices advised him to let the Green Mountain ladies alone, for their hands and their tongues were equally ready.

He made forays on the farms to impress wagons and animals for his Majesty's service, and paid for them afterwards at government prices; but somehow the owners got timely intimation, the wagons were not to be found at all; boys mounted on the bare backs of horses were seen driving others before them at a pace which left men unaccustomed to the wild country utterly at fault. The oxen were said to be grazing in the woodland pastures; some of the proprietors offered Captain Devereux a rope-noose to go and catch them, at the same time remarking that their oxen were all of the buffalo breed, and "uncommon spry with their horns at strangers;" and finally, one sturdy farmer gathered a few of his neighbors, informed the captain that he had no authority to seize horse and wagon there, and commanded him to quit his farm directly. Devereux talked of using fire-arms, but neither officers nor men of his company cared to come into collision with the hardy inhabitants of the Green Mountains—accustomed to hunt the bear and wolf, and crack shots every man—so the captain had to beat an ignominious retreat, talking of the Mutiny Act and courts-martial all the way. The boys hooted him as he passed, and he threatened to arrest and punish them; but one of their fathers sent him word that he had a cowhide ready for his Majesty's officer in case a finger was laid on his child. He brought mechanics and laborers from the distant towns, but his peremptory, overbearing manner, so disgusted them that they deserted the work and made common cause with the country people. Fortress building under such circumstances was simply impossible; indeed, the little that was done shared the fortunes of Penelope's web, for the Green Mountain Boys destroyed over night all

that had been accomplished in the day. When sentinels were placed to watch against these destructives, they either got frightened or took the opportunity to desert, and could never be caught again. Finally, the service was found so wearisome and useless that desertion became a common cause, and very few of the company remained, except the disheartened and discontented officers.

Captain Devereux had enhanced his own defeat and incurred the general hatred, but unfortunately the odium did not fall on him alone. Squire Delamere's political opinions had always been unpopular with his neighbors, and now the squire became unpopular also. He had quarreled with Squire Archdale, his best friend, and the friend of liberty, too. He had associated himself and his family with the unscrupulous instrument of an oppressive government. It was no secret that he meant to bestow his heiress, and the large estate she would inherit from him, on the detested stranger, on account of his high birth and connections in the old country, though she had been sought in vain by Sydney Archdale, her equal in every respect, and now regarded as a banished patriot. There was scarcely a man on the banks of the Connecticut who did not feel himself called upon to resent such open opposition to his country's cause, and the ladies unanimously included in the proscription poor innocent Constance, who dreamt of Sydney Archdale every night, and would have given a cheap bargain of the captain to any bidder.

Did they not see her flaunting in brocade and lace when all the respectable women of the land were clad in homespun and busying themselves spinning flax and wool to assist their family's wardrobe?

They little knew how trying it was for her to see old and once friendly neighbors frown on her father and herself as they passed by, or not recognize their existence at all. How hard it was to find old acquaintances, to whose family festivities they used to ride so merrily through the summer evening, or the clear, cold winter night, and who came in the same fashion to the Elms, refusing her father's invitations, some in reproachful terms and some with cold excuses.

In hot Virginia or the Carolinas, a few duels would have been fought; but the Puritan spirit which still prevailed in New England forbade "affairs of honor" as infractions of the sixth Commandment; so things took a quieter and more persistent course.

Delamere had considerable pride and greater obstinacy; moreover, the converse of Lord Lavenham's nephew had blown up his Toryism to a perfect blaze. He took no notice of the general indignation, except to defy it, and show the Whiggish neighborhood that it could not frighten him.

He rode out ostentatiously with the captain, and insisted on his daughter riding, too, in all the pomp of British fashion, with liveried servants behind the party. When some serious old friends attempted to argue the point with him, he retorted with charges of sedition and treason on them and the whole country. When the minister of the old meeting-house in Hadley prayed that George III and his counsellors might be brought to repent, and turn from their unjust dealings with the American provinces, the squire rose from the pew which his great-grandfather had erected, caught Constance by the arm, and hurried out, exclaiming that he would not hear rebellion encouraged in the house of the Lord.

Probably no other man could have proceeded to such lengths with equal impunity; but Delamere's charities to the poor, and kindly doings to the people of all classes were not to be forgotten, and the comments on his conduct at many a fireside were wound up rather in sorrow than in anger.

His relations, who were all of his own principles, but moderate and prudent men, remonstrated with him, some by word and some by letter from the distant provinces where they were settled, but all in vain. The squire of the Elms had reached that point of wrong-headedness from which he was not to be moved; it was a liability of his mental constitution, and made him impatient with even the gentle expostulations of his loving daughter. "Dear father, she would say at times, when venturing to advise him against some contemplated exhibition of his loyalty, 'these doings will make the whole country your enemies.'"

"What, Constance," Delamere would cry, "are you a soldier's daughter and afraid of a pack of bragging

Whigs? They will all be quiet enough when the King's troops arrive in Boston Harbor, aye, and glad to dance at your wedding the day you become Mrs. Captain Devereux, and soon to become my Lady Lavenham, I hope."

"I wish we had never seen Captain Devereux," said poor Constance one day when a sudden fit of sincerity overcame her habitual deference to her father.

"Now, girl, you will make me angry with you! What possible objection can you have to the captain?—a perfect gentleman by birth and breeding, a distinguished officer, or he would not be appointed to such an important charge as the rebuilding of Fort Frederick, and so devotedly attached to you! I must say, Constance, your perverse ingratitude perfectly surprises me," said the squire. "You will not meet with such a lover every day. He can scarcely look at anything else when you are present. What is your opinion, Hannah?"—Mrs. Armstrong happened to enter the room at that moment—"Did you ever see a man caught, brought into bondage, enslaved, I may say, by any woman, as Capt. Devereux is by my girl here?"

"Friend," said the Quakeress, "I am no judge of that matter, having left the days of courtship far behind me; but I know that the same Devereux is a stranger to thee, for he was not brought up in thy neighborhood, and thou knowest nothing of his bygone years, or in what manner they have been spent. I also know that his coming to this land, and especially to this house, hath brought much confusion and little comfort. I have a great concern on my mind regarding the same, but I have laid it before the Lord. Do thou likewise, friend Delamere, and, casting away all thine own conceits and devices, seek His direction how to deal with this man whom thou hast not proved."

Delamere made no reply; he did not relish Hannah's exhortation, though he could not dispute its wisdom and piety; but had the squire been invested with the wizard's invisible-making mantle, and stationed at a corner of the log hut occupied by Lieutenant Gray, some days after, he would have heard his own son-in-law elect more fully discussed.

CHAPTER IX.—THE LIEUTENANT'S REVELATIONS.

The lieutenant's hut stood in a hollow of the mountain side, partially sheltered by a thicket of evergreen shrubs, but open to the sun, which was shining in at its open door, bright and warm, as it shines in the fine Winter days of New England, when the sky is clear and the frost has been keen over night. The leafless woods around were all in a glitter, for every bough was hung with icy gems that took a thousand colors as they caught the rays of light; the rough ground was in a glitter, too, for every mountain plant and deep-rooted stump had got its share of brilliance, and the roofs of the cabins built round the ill-prospering works of Fort Frederick, where every sheltered spot could be found for them, had a glistening coat of the Winter's wearing. Most of these cabins were tenantless, but from some the smoke was rising through the aperture in the roof which served for a chimney. It was streaming up from the lieutenant's habitation, but he sat in the warm sunshine on a log beside his door, in an undress, shabby and weather-worn, with his arm in a sling, and whistling "Lord Antrim's March," though he looked considerably out of sorts and cheer. His hut stood alone, and at some distance from the rest; but a mountain path led past it, and along that path, at a rattling pace, came a young hunter, who might have been taken for an Indian at the first glance, for he wore the hunting-shirt, the girt-up blanket, and the long leggings of the red man, but his face and figure belonged to the European race. Both were singularly handsome. Over his right shoulder he carried a rifle of the best construction then known—for it was on the flint-and-steel principle—and over the left a game-bag, so well filled, that dark glossy wings and tail feathers protruded from its opening.

The old soldier's face took a foraging look at the sight of it, and as the young hunter approached he said, "Good day, friend; I wish your luck had been mine this morning."

"Good day," said the hunter, pausing in his rapid march; "but have you got no luck of your own to spare?"

"Well, when a man cannot go a-shooting on account of a sprained arm, from a fall over one of these

treacherous stumps in the dark, and dare not go to a farm-house to buy a chicken or so, for fear of the gentle ladies of these parts falling on him with poker, shovel, and tongs, I think he can scarcely be called lucky on the whole," said the lieutenant.

"Scarcely, indeed; but I am sorry to see a gentleman and a soldier so situated; do me the favor, sir, to choose anything that may suit you here;" and the hunter lowered his game-bag, and opened it to show the contents.

"You are very good, sir, but a certain class should not be choosers, they say; anything you are kind enough to give me will be very acceptable under the circumstances," said the lieutenant.

"Well, suppose we say this fat turkey," said the hunter, taking out a noble specimen of the Indian cock, as the first French colonists called it, and placing it on the log by the lieutenant's side.

"Really, sir, it is too much to take from you; but I have not had a good dinner for a twelvemonth, and I shall never forget your generosity in my time of need. If there were anything stronger than water within my reach, I should drink your health on the spot; do sit down a rest awhile." And the lieutenant made room on the log.

"That can be had, sir, if you will do me the honor." And the hunter produced from a wallet concealed by his blanket coat, a goodly flask and two cups of beechwood, one of which he proceeded to fill and hand to the ingenuous old officer.

"I don't generally drink in the morning, but I will on this occasion. Your name, sir, if you please; I like to drink a gentleman's health in due form. My own is Gray, Charles Edward by christening. My mother insisted on that, because her family were all Jacobites. I am not sure that they don't call George III. the Elector of Hanover to this day."

"Families will have their ways," said the young man. "My name is Hunter—Westwood Hunter—at your service."

"A good name for these parts," said the lieutenant; and the new acquaintances drank to each other out of the beechwood cups with all the complimentary formalities of the time—a time in which these drinking customs were the great curse of all society, as they are too much still.

"I must say, sir, you understand what good liquor is." And the old officer smacked his lips before he had half emptied the cup.

"Do me the favor to accept the flask; I can get another as well filled where I am going," said Westwood Hunter, as he placed his second present beside his first.

"No, no, sir—you are too generous; I cannot deprive you of such a valuable traveling companion." Here the lieutenant suddenly changed his strain, as a negro, with a bundle of dry sticks on his shoulder, emerged from the neighboring wood. "Look, Pompey!" he cried, taking up the turkey and flourishing it in the air; "here is a treat we have not met with before in this inhospitable place. Go, my man, and make it ready for dinner; but mind you keep well within doors, for if they catch the scent they will be down upon it like a pack of wolves on a spent deer, and not leave a bone for us to pick. There are four young fellows that could eat a bison between them. You will stay and dine with me on your own present, my boy;" and he clapped Hunter on the shoulder. "Pompey is a splendid cook. You'll stay—say you will."

"I cannot, sir; don't press me. It would not be kind, for I have to meet a friend whom I may not see for some time again, far down in the low country beside the Connecticut; but I will sit here and rest awhile, with your good leave, and then go on my journey," said Hunter.

"Well, my boy, I should be sorry to do anything unkind by you after your civility to me, but you will come this way again, I hope. Maybe I will find something to make a fitting acknowledgment for your fat turkey and good liquor. As I was saying, you understand that subject, which cannot be said of most young men—they know little except about girls' faces. I'll warrant you are up to that matter, too; here is success to your wooing, my boy."

"Were you not up to it in your own time, lieutenant?" said his young companion.

"That I was. I courted a lady said to be the finest woman in Portsmouth; she was acknowledged belle of

all the ladies at our garrison balls. But she jilted me, my boy—she jilted me. I couldn't blame her, either," said the lieutenant; "there were seven sisters to provide for, with not a farthing of fortune, and every one plainer than another except herself. A rich army contractor came up to the scratch, and I was only a poor subaltern."

It is curious to notice how elderly men, even those of grave and busy life, sometimes like to tell of the tender hopes and the disappointments of their younger days. That elderly soldiers, with idler life and fewer ideas, dwell on such topics, is less surprising. Of Lieutenant Gray's prattle to his young friend we have told more than enough, were it not that it prepares the reader for some incidents in the sequel of the story.

"But you might have got promotion," suggested Hunter.

"Promotion!" and the old officer laughed ironically; "that shows how much you know about our country, my gay young man. If a man happens to have relations or connections among the tip-tops, he will get promotion sure enough, but without that he might as well expect guineas to be rained from the skies to him. Here is your humble servant, for example. My father was a merchant in London, thrifty and well-to-do. He wanted to make one of his sons a gentleman, and put the rest into business. I wanted to be a soldier, so he bought me a lieutenant's commission, and it is in my pocket yet. I have served the king nearly thirty years; I have been in as many actions in both Europe and America. It does not become a soldier to speak in his own praise, but I have had many an honorable mention by my superior officers. And what was the result? Why, at least a score of young coxcombs, with titled kin, stepping over my head, and some of them only young in the service, like our precious Captain Devereux."

"Nobody hereabouts seems to like the captain," said Hunter.

"Nobody could, for he is a fool—of the worst sort, too; a fool that can talk. He has picked up saws and sentences in all directions. To hear him lay down the law on any subject, one would imagine he knew everything under the sun and above it. It strikes an honest man dumb to hear him holding out on religion and morals after the rigs he has run."

"Has he led a bad life, then?" inquired Hunter.

"As bad as man could lead short of a quick march to the gallows," said Gray. "He was a trouble and disgrace to his family from the first use of his razor. This promising boy (Cecil Talbot Devereux is his name, I understand) was the youngest of five, and the only son. The four sisters are all old maids now, and the whole lot live at the family seat in Suffolk, a tumbled-down old place, which it would take thousands to repair. They give out that Cecil is heir to the Lavenham estate, and a valuable inheritance it is! The lands are so deeply mortgaged that no amount of interest would induce one of the Jews to lend a farthing on a *post obit* from that quarter; and besides, nobody can certify that there is not a Scotch marriage contracted by the old viscount when in Edinburgh. It is also rumored that two sons by this marriage are in the army."

"The one boy in a family is commonly spoiled, they say; and if the old folks at home spoiled Master Devereux, they have reaped abundant fruit of it. At Cambridge he got into debt too deep for his noble relatives to pay, and there were two or three charges of swindling his fellow-students, besides. He avoided writs and prosecutions by flying to the Continent, where he remained for some years, moving from one town to another, and living by card-sharpping and other disreputable means. At length, when the debts were somehow compromised, and the swindlings smoothed over, Cecil came back, and his friends got him into the Treasury. I don't know what he did there—they never let out the misdoings of young men related to lords—but he was dismissed within the year. Then his friends got him shipped to Jamaica, as manager of an estate belonging to the Earl of Arran, who is distantly related to his mother, but there were keen Scotch eyes upon him. He was found out appropriating cash—that is the correct phrase, I think—and sent adrift once more. However, he contrived to strike up with a widow at Spanish Town; she was a quadroon, with nearly as much of Spain as of Africa in her composition, but a remarkably handsome woman. An old negro, free and rich, had

married her, and on his death, which happened but a few years after, left her a good jointure and one little boy, the heir of his property."

"The Honorable Cecil courted and married the widow, got hold of her jointure, and got hold of the boy's inheritance. Soon after, the boy was missing one day, and supposed to be kidnapped. Many thought that Devereux had a hand in the affair; and the boy has never been heard of since. His inheritance could not be sold without proof of his death, which in some respects was fortunate, for it remains to this day a dilapidated, neglected place, but still worth claiming if the negro's son should ever turn up again. Devereux spent all he could raise upon it in extravagant dissipation, spent the quadroom's jointure in the same manner, and neglected herself till the poor soul took to bad ways, and upset the little brain she had."

"When all was gone, her vile husband deserted her, and went to Barbados; but from that island he was obliged to fly for uttering forged checks. The hunt for him was hot over all the West Indies, but the bird was not taken, and where he found refuge was never known. His family, to their great relief, I suppose, lost sight of him for years. Some tourists said they had seen him wandering about the Continent. And the most curious part of the tale was that the poor crack-brained woman disappeared from Jamaica when the search for him died away; and the said tourists believed they had seen her in his company."

"Be that as it will, Cecil Talbot Devereux turned up at last. The servants whispered that he had come home one night rather late, and in such a shabby condition that the four maiden sisters, mother and all, went off in strong hysterics at the sight; but they got over it, poor ladies, and kept him hidden somewhere till new clothes and other requisites were got ready, and then the viscount's heir showed himself as grand as ever, and full of fine talk about his travels in Spanish America."

"It is probable that he was there in the latter part of his eclipse, for his negro servant, Paul, nearly as great a rascal as himself, let it out to Pompey, that he had placed his quadroon wife in a convent among the mountains of Peru, where it seems they kept a lunatic asylum—not an uncommon case, I believe, in Catholic countries. Old Gage, in New York, is related to the Devereuxs, and the Devereuxs are related to the minister, so the family scapegrace, who could not be put in a creditable position at home, is sent out to be provided for in Massachusetts, and Gage gets up an appointment for him to superintend the rebuilding of Fort Frederick. The old fox is perfectly aware that the captain might as well be sent to rebuild the Tower of Babel. He knows as much of engineering and fortification as he does of Japanese, and is as fit to manage the country people as a wild buffalo; but, then, that is the make-believe part of the business. The real one is a certain Squire Delamere, living in a fine estate of his own, called the Elms, down yonder, beside the Connecticut, and his daughter, who is to inherit it after him. Believe me, she is the handsomest girl I ever saw, except the one who turned her back on me and took the army contractor. Well, as I was saying, Devereux's real business is to court the heiress, and come in for the estate in due time. It seems the Lavenham family had some kind of a claim on it out of date and out of mind, but they have an eye on the chance, you see, trust them for that. They say the captain had no mind to try it at first, but since he has seen the girl and the estate he is dead on them both, which is not to be wondered at; but, Mr. Hunter, it goes against my conscience to see a half-married, ill-conditioned, ill-conducted knave like him getting hold of such a fine girl in the days of her youth and innocence."

"Do you think he will succeed, then?" The young man's look was bent on the ground.

"I fear he will," said the lieutenant. "Delamere is a fine, generous fellow, but he has a good bit of the simpleton in him—just the man for Devereux to talk over; and I fancy the notion of his daughter being called 'your ladyship' some day has got into his head. There would be no use in telling him what sort of a son-in-law he is likely to have; the man is as obstinate as a hundred pigs when he happens to be bent on a thing. Devereux would swear it was the blackest of calumny, and you know it doesn't suit to speak against one's superior officer, especially when he is related to a lord."

"And the young lady," inquired Hunter, still contemplating his mother earth; "is she as much taken with the prospect of a title as her father?"

The lieutenant did not notice the eager, anxious tone in which that question was asked, but he answered quickly, "Not a bit of her; she has got twice her father's sense, and I think can smell a rat, young as she is. In short, I wouldn't mind surely affirming that for all his fawning and flattering, she hates the sight of Devereux; but by all accounts she is a good girl, and won't go against her father in anything; so I am afraid she may be persuaded to marry the crafty villain at last; and the more's the pity."

"It is," said Hunter, as he rose and took up his rifle. "Good day, sir; and many thanks for your curious tale; it lets a young fellow like me know something of the world; but of course I repeat nothing of the kind."

"No doubt of your discretion, my boy; I never saw a man of the woods wanting in that. Good day; and sorry I am that you can stay no longer. But you won't forget to come again this way," said the lieutenant.

"Be sure I will, if it were only to see you and hear how the captain's business gets on," and, warmly returning his sturdy shake-hands, the young man set forward at a pace which soon took him out of the old officer's sight.

"A first-rate fellow," soliloquized the latter. "I'll warrant he is a son of liberty, or a Minute Man; it is best to have no hand in their politics; he has given me a good dinner, and something to wash it down, so good luck go with him. Wise folks they are in England to think of taming a country full of boys like that; and old Sage writing to them that when the British lion roars the Americans will become lambs; no, indeed, they will find their mistake soon;" and he went in to look after Pompey and the turkey.

CHAPTER X.—THE NIGHT ATTACK.

The evening of that fine winter day in which Lieutenant Gray relieved his mind to Westwood Hunter on the subject of his superior officer, found Constance Delamere standing at her father's gate as its twilight melted into the light of a glorious moon. The Squire had gone to Springfield on matters of business; she had expected him home by this time, and grew anxious now when he happened to be out late. But there was the sound of hoofs on the frozen road; she stepped out, and had almost said, "Welcome home, father," when Captain Devereux, followed by his negro servant, Paul—he never rode alone in that country—galloped up.

"My dear Miss Delamere," he cried, springing from his saddle with all the agility of a youthful gallant; "it is an unexpected pleasure to meet you here by moonlight alone."

"I was looking out for my father; we expect him home from Springfield, and I took the sound of your horse's hoofs for his," said the rather confused Constance.

"Well, he has a glorious night for riding home; a happy home, too, at the end of his journey, and bright eyes looking out for his coming—what could a man ask more?" and the captain leaved one of his deepest sighs.

"I wish he would come," said Constance, not knowing what else to say.

"Let us go and meet him; a walk in this splendid moonlight will cheer your spirits," and the captain attempted to draw her arm within his own.

"Oh no, thank you," cried Constance, with an involuntary start back that considerably increased the distance between them.

"Might I ask why, Miss Delamere?" the captain's tone had grown coldly sharp now.

"Oh, nothing, but—but I am not accustomed to walk alone with gentlemen;" and Constance felt strongly inclined to run into the house.

"Indeed," said the captain; "that custom cannot be of long standing, for I had the honor to see Miss Delamere in close conversation with a gentleman in the Holyoke Woods one day last fall."

Constance did not catch the sinister triumph of his look, for the veil of night concealed it, but she knew that his words referred to her last interview with Sydney Archdale. That was the man whom Philip had seen standing up in his stirrups and looking through the trees. It was the sound of his horse's hoofs that startled

them in the silent forest. These recollections flashed across her mind like lightning, and the young girl's sense and spirit came to her aid at once.

"Yes, sir," she said, in a calm but dignified tone, "you did see me, for I happen to know it, in conversation at the time and place you mention; but he was the son of my father's oldest friend, my earliest companion, who had been to me as a brother ever since I lost my own."

The speech was plain and simple enough, but it had an unaccountable effect on the captain. He turned quickly away, as if to leave her and the Elms without a word, but altered his mind the next moment, for Delamere himself rode up, with his usual cordial greetings, and some additional railery on what he called their romantic moonlight meeting.

Devereux replied in the same strain. Constance was herself again; nobody could have guessed that anything particular had passed between them, and the three went in to spend the evening as many a one had been spent since the captain's first visit to the Elms. They were sitting in the drawing-room, talking together over the news which the squire had brought home from Springfield. It was all about the misdoings of Whigs and Liberty Men, when Constance heard what seemed to her a low knock at the outer door; then there came a rush of rapid feet, the next moment the drawing-room door was flung open, and a troop of armed men poured in.

"What does this mean?" cried Delamere; but before he could utter another word two powerful fellows threw themselves upon him, and pinned him down to the chair.

"Master, darlin, where's your guns and pistols, we'll all be robbed and murdered," shouted Denis Dargan, as he broke in at a small side door; but the best man was seized by another two, and, in spite of his struggles and vehement appeals, bound with a strong rope, hands and all, to an old-fashioned arm-chair in the corner. Captain Devereux was fixed upon almost at the same instant. Constance saw them dragging him out of the room, while he made a desperate but silent resistance, and she remembered long after the fierce, dogged expression of his face, not like the look of a brave soldier overpowered by numbers, but that of a criminal who knew himself to be taken. Caring only for her father, and knowing her countrymen too well to have any fear for herself, the girl pushed in between them, and threw her arms about his neck; while Delamere who was too much of a soldier not to know when the game was up with him, and too proud to make demonstrations which could not be effectual, and, moreover, was somewhat stunned by the unexpected attack, said quietly, as he looked at the two sturdy Green Mountain farmers, "You have daughters yourselves, do my poor girl no harm."

"There is not a man here that would lift his hand against a woman, so don't be frightened, Miss Delamere; nor against you either, squire; we all know what a true and worthy gentleman you are, though we don't like your principles," said a man who appeared to be the leader of the expedition. He was dressed exactly like the rest of the Green Mountain Boys—for such the invaders were—but his face was entirely concealed by a black mask, and his voice had a strange metallic sound, as if he spoke through some artificial contrivance. "None of us will do harm to you or yours, it is that English captain we came to deal with."

"And how do you mean to deal with him?" said Delamere; remember he is a king's officer."

"We mean to send him in a good boat and the charge of four honest men down the Connecticut to Long Island Sound; there he will be landed at the first convenient place, with orders not to be seen in this country again, or he may chance to go down the Connecticut without a boat."

The masked man stepped out as he spoke, but Constance, who by this time had crept away to a seat behind her father, where she sat with a much relieved mind, saw him whispering something to a determined-looking young man outside the door, who was evidently his second in command, and by following their glances to an opposite corner, she found that the subject was Hiram Hardhead. There stood the prophet, silent and eclipsed by the presence of a superior power. His face was at work, however, making the most extraordinary

grimaces, as if in rehearsal for a coming exhibition. They were meant for her too, but the girl scarcely saw them. There was something in the air and figure of the masked man as he stood there, half in light and half in shadow, that riveted her attention, something she had seen before; and could it be possible? but as he caught her look and acknowledged it with a respectful bow, she knew it was Sydney Archdale. Constance kept that secret in her own breast for many a day; but scarcely had she recognized him ere he was gone, and the determined-looking young man stepping in, said to his company, "We're to stop here and keep folks in their places—so are the boys outside—till the Britisher gets a good start down the river, and when we ketch the crack o' the rifle, slope every man."

At this intimation a general settlement took place. The Green Mountain Boys, young and old, seated themselves around Delamere's drawing-room with as much order and gravity as in the pews of their mountain meeting-houses.

"Let go my father's arms, and he will sit quietly; I am sure he will," whispered Constance to the kindest-looking of Delamere's custodians.

"There ain't any use in taking up any other line, miss. However, we don't mean to be ugly; I've got a daughter myself about your time."

"I expect I've got two!" said his companion in arms, as both released the squire from their hold and withdrew a little into the background, while Constance seated herself close by her father's side, and Hannah Armstrong glided in, needlework in hand, and took her place on the other.

The house was quiet without and within—so much so, that Constance could hear the undertoned talk of the men who had been placed outside to prevent escape by doors or windows, and the opportunity of making himself heard was too good for Hiram Hardhead to lose. "That lad has got the inward light o' liberty," he said, with a grimace at Constance, specially intended for her information regarding the masked man, and Hiram's mode of conveying the like was rather remarkable, for by some inexplicable movement of his countenance the one side of it seemed to go up and the other down. "He has got the inward light o' liberty, I say. Yea, and I will prophesy furthermore concerning him, that not a cracker in these here provinces will do more valiantly in the battle for freedom, or come to greater fame and exaltation in Massachusetts. Let those that hear me understand and consider—" here he made a still more fearful grimace at Constance, which the squire could not see, owing to his position, but his best man could, and Dargan's indignation fairly boiled over.

"There's that fellow at the prophesin' agin," he cried, writhing in vain to break the rope that bound him. "If I was at him wid the flail, I'd give him the light o' liberty through a crack in his skull. Mrs. Armstrong, darlin'! stuff up his throat wid that sewin' o' yours."

"Friend Denis," said Hannah, while she calmly sewed on, "it were better for thee to keep quiet, for thou advisest things that are not convenient; rather turn thine eyes and ears away from that foolish fellow who is manifestly out of his wits—if he ever had any."

"Sayest thou, that I am out of my wits, Hannah Armstrong?" cried Hiram; "I, who have foretold marvelous things whereof no man but myself had got a winkin'! I, who have prophesied in every shanty, from Rattler's Rest to Cob's Canter, and preached on every stump, from Badger's Bourn to Polecat's Hole, making glad the hearts of all that heard me! Thou lanky, shanky, hickory-hearted female! I tell thee—when the good days which I have foretold shall come to this land; when the Britisher's yoke is thrown from our necks, and we go it like buffalo calves on the spring grass, and pay no taxes; when every man shall forget his causes of grief and indignation; when we shall import tea without duty, and the women shall rejoice over it, and their tongues will go with the might of a mill stream; when my praise is in all men's mouths, because of my prophesies in the time of bondage, and I am set on high as the bully-boy of the Green Mountains—then, Hannah, I will cast thee out of my cousinly remembrance!"

The Quakeress sewed away without giving Hiram so much as an answering look; but at this point of his discourse, he caught Constance, and her father too, silently laughing. Their situation was not a merry one, but Hiram's threat matched with his appearance, and

had an irresistible effect on both. The prophet at once found a way to revenge himself.

"For the present I will testify against thee, thou stiff-starched remnant of most ancient muslin—or rather, huckaback," he continued, "because thou hast not plucked the wings of pride and the plumes of vanity from the back of yonder wench," and his forefinger was shot out like an arrow at Constance. "There she sits, all fal-dals and feather-me-fair, like any daughter of Babylon—" Here Delamere turned fiercely towards him, but there was no time for his wrath to find vent, the determined-looking young man at that instant caught Hiram from behind by the shoulders, and ran the prophet, like a piece of furniture on casters, straight out of the front-door, which he closed upon him with the gentle injunction, "Prophecy there, you varmint."

Prophecy Hiram did in the utter darkness, which seemed to lend vigor and volume to his tongue. They heard him hold forth to the men on guard against the squire's daughter and her fine clothes; against the squire for thinking "o' hitchin' her to that stumped-up bundle o' airs and iniquities from the played-out old country;" against George III., his ministers, and his parliament; and against Hannah Armstrong and all her Quaker relations. It was curious that though the Green Mountain Boys had evidently no great respect for their prophet, and could treat him with little ceremony when occasion required, they nevertheless listened to his deliverances with a sort of tacit approbation. His style was more familiar than grotesque to those quaint and primitive people of the wooded hills, and they found in him an exponent of popular opinions and expectations. It was also curious that Hiram, though accustomed, in his own phrase, to lift up his voice like a trumpet, especially when prophesying against anybody, poured forth his torrent of predictions and enunciations in a tone so low and quiet that no belated passenger could suppose there was anything particular going on at the Elms.

Noiseless without and within the whole house remained; the Green Mountain Boys sat watchfully, and occasionally exchanged whispers. Delamere sat with folded arms in a state of dignified resignation. Constance turned over a volume of prints for his and her own entertainment. Philip peeped over her shoulder, and saw them too. Hannah Armstrong proceeded with her needlework, undisturbed by her cousin's half-heard remarks. Denis Dargan fell asleep in his bonds, and woke up at intervals with the force of his own snoring. Thus things went on for an hour or so, till the sharp report of a rifle broke the silence of the night.

"It's time to slope, boys," said the determined-looking young man, putting up his knife and stick; and without a sound, but that of their retiring steps, the whole of the invading force passed out of the squire's mansion, quietly closing doors and gates as they went. Then the Quakeress rose, laid aside her sewing, and untied the rope which had kept Denis fast in the old arm-chair. A similar process was supposed to be going on in the kitchen department, for the maid-servants appeared with fragments of rope in their hands, and the men talked of being cramped and screwed with the "tyin' up;" but the interpretation given by the squire's best man, who was the first on the spot, to his familiar friends was probably the correct one.

"Bad luck to the one of thim was tied at all; it was every bit a pretence to keep the squire from firing the braes on them. Shure they were jumpin' out o' their skins wid joy to get rid o' the captain; and good reason they had, he was a botheration to the country's side and to the house too. It's proud I was myself to see him a thrallin' out, but I knowed it went agin the squire intirely, and the master knows I would box the Green Mountain Boys all round rather nor displease him."

CHAPTER XI.—LEAVING THE OLD HOME.

It was deep midnight before the squire's mansion was clear of the invaders. There was then no use in giving the alarm, or attempting anything for the captain's deliverance; he was far on his way to Long Island Sound by that time, as the capturers intended he should be, and there was nothing for it but to wait for the dawn of another day.

The supper at the Elms was late, and almost silently discussed in parlor and kitchen; the different lights in

which the event of the evening appeared to the household and its head, made a prudent reserve the general policy. "If I had got half-an-hour's warning they should have had a hot reception," was the only remark Delamere made regarding his recent visitors. Constance would have reminded him of the overwhelming number—she knew her father had a soldier's spirit, and could not bear the thought of being defeated without striking a blow—but the subject was a hard one for her to speak of. It was a positive relief to have got rid of the captain and his suit, though the process was rather summary; but it grieved the true-hearted girl that her father should have been treated with such indignity in his own house, and that Sydney Archdale should have been leader in the business. After-reflection made it plain to her that the young Minute Man had acted for the best, and in the meantime Hannah Armstrong, though she said not a word to the squire, put the case in the clearest light, when, in her concluding grace, she gave thanks that though armed men had been permitted to enter their dwelling, neither strife nor bloodshed had thereby come to pass.

The squire was early astir next morning, riding to Fort Frederick, and arousing the few that remained of the captain's company to avenge the wrongs of their abducted chief by bringing the perpetrators to justice. They were not fired to vengeance. Devereux was just the man whom they as well as the country-side could spare. But they were considerably astonished; the thing had been so quickly and quietly done that the news of it took everybody by surprise, and the only sign or intimation heard of in the whole neighborhood was, that late-sitting and early-rising people on the river's banks had seen a boat with a number of men—none could say how many on board—steering down the Connecticut with all the speed that well-plied oars and a seaward current could give it.

"For certain," said Lieutenant Gray, when their inquiries had made out that report, "it was the captain's passage-boat. I hope he is safe in New York by this time. You see the masked man was as good as his word. By the way, squire, I have observed that your New England men commonly keep promises of that kind; but as for having the law of the said gentleman and his following, we might as well expect to get it of as many wild cats. Who could find or identify the Green Mountain Boys in their native wilds? I have had a taste or two of their quality. Take a friend's advice, squire, and let them alone." The country justice before whom Delamere laid informations against the invaders of his house indorsed the lieutenant's opinion, and ultimately the squire could not help entertaining it himself. He wrote a full account of the transaction to Governor Gage, and the governor replied in a letter of high laudation to him, and great fury against the Green Mountain Boys. He would send a regiment to be quartered on the country people, whether the magistrates allowed it or not; he would have Fort Frederick rebuilt and garrisoned without delay, for the protection of loyal subjects and the repression of treasonable parties; but a subsequent post brought Lieutenant Gray orders from his Excellency to leave the work in which so little progress had been made, and return to New York with the remnant of the company as quietly as he could.

The lieutenant executed those orders so punctually, that the evacuation was known only by the shanties being found empty, on which discovery the youth of the Green Mountains assembled in great force, demolished with picks and crow's the little work that had been accomplished, reduced the shanties to their original logs, piled them up and made a gigantic bonfire on the site marked out for bastion and casemate, round which they rejoiced, and Hiram Hardhead prophesied for the greater part of a winter evening. On the day of that transaction Squire Delamere received a letter marked "Private" and skillfully printed with the pen, a device much in use at the time, to prevent the recognition of handwriting. It began with, "Honored sir, I think it right to let you know what has come to my knowledge concerning the man to whom, as report says, you meant to entrust the future happiness of your child," and proceeded to relate Captain Devereux's history exactly as it was told by his subordinate officer to Westwood Hunter, but the signature was simply an "Unknown Friend."

"A rascally piece of impertinence and slander," said

Delamere. "Just like all Whiggish doings—first force a man out of the country and then calumniate him to the only friend he had in it. The squire made these reflections to himself, and kept the letter to himself also; but he read it over two or three times, and finally put it away in the secret drawer of his own bureau, saying I will hear what the captain has to say on the subject, if ever we meet again."

Devereux's removal gave general satisfaction to the country people, and the manner of it entertained them, particularly as reported by the provincial papers; but that was the one drop which made Delamere's cup of bitterness overflow. He was one of those characters on whom misdoings or mischances weigh more heavily in succeeding time than at the first brush. His quarrel with Archdale had been the cause of untold regret to him, and yet the breach was never to be healed; the circumstances of the time seemed to make that impossible, for his ancient friend had been elected, almost in spite of himself, one of the Massachusetts delegates to the Whig Congress then sitting in Philadelphia. The estrangement of old neighbors and intimate associates vexed him more than he would ever own; and now the entire district, where he and his fathers had lived in honor and esteem, was amused with the lowering details of that night attack upon his house, when his familiar guest and his daughter's suitor was dragged out, and he a powerless witness to the fact.

These reflections and memories made his old home and neighborhood distasteful to the squire, and prudential considerations pressed upon him too. He was the only royalist of note in that part of the Connecticut Valley. The Liberty Men were growing bolder, and the country more disturbed every day. Who could tell that Sydney Archdale might not find his way to the Elms some night with a band of Minute Men and "such-like villains," and carry off his daughter, or frighten her into an elopement? From the sight he got of Constance and the captain together in the moonlight, innocent Delamere believed that the noble suitor would have certainly succeeded if time had been allowed him, and he had more than once endeavored to console the imaginary grief of his daughter by assuring her that Devereux would prove true and come back in spite of all his enemies.

In the meantime, the regiment that was to protect loyal subjects did not make its appearance. Governor Gage had nothing of the kind to spare; but a circular of his, addressed to all officers who had held the king's commission in the French war, and requesting them to raise independent companies for his Majesty's service, reached the Elms.

"I could not raise a man here, except my own ploughboys; and I am not sure of them either," said Delamere; "but I can serve the king myself, and with the help of Providence I will. A man had better take up arms at once, and get into the stir and change of military life, than stay here alone, to fret and fear and be insulted by a Whiggish pack that one has no means of bringing to reason. I am not yet too old to serve his Majesty with honor, I hope, and do my part in putting down rebellion in this country. If things should come to that, they will give me the commission I formerly held, no doubt. I must go to Boston and see about it. But my daughter—it would not be safe for her to remain here; no, nor to stay with her aunt in Springfield;" and then a second plan occurred to the squire.

He was the owner of a house in the provincial capital, which had been bequeathed to him by a childless uncle, and tenanted for years past by a Quaker merchant, known to his people as Friend Stoughton, a man eminently successful in business, and esteemed by the townspeople for his blameless life, upright dealings, and liberal spirit, but at this time winding up his affairs, with the intention of retiring to spend his latter days among his kindred in Pennsylvania. Stoughton was Archdale's intimate friend; but Delamere and he had always been on cordial terms; and as the house was large, the squire had no doubt that arrangements could be made with him for room sufficient to accommodate himself and his daughter, and the few helps they would require, till his time of occupation expired and the house should be their own.

"How would you like to go and live in Boston?" he said, as his daughter entered the second parlor, which was the scene of his musings.



THE GARDEN SEAT.

"I should like it well, father, if you were going there too"—the old place had grown as dreary and disagreeable to Constance as to him. Terror and trouble had come within its walls; cold or frowning faces passed by its windows; and for all its pleasant sheltered situation, and fine prospect of fertile valley, winding river, and wooded heights, she was ready and willing to leave the Elms.

The squire lost no time in writing to his Quaker tenant on the subject, and received an answer characteristic of the people and the man.

"Friend Delamere, we have room enough and to spare, but it would cause much inconvenience to bring hither thy household goods till ours were removed; therefore, if it answer thy purpose, come thyself, thy daughter, and such helps as may be needful, and live with us as part of our family till we are ready to leave the house in thine own possession. If thou art coming, be good enough to let us know what time we may expect thee; and be sure that thou and thine shall be welcome to thy friends, Jacob and Rachel Stoughton."

"Plain and brief, but as kind as can be. We will bundle and go at once," said the squire; "Quakers neither make nor expect ceremony. Hannah Armstrong is just the prudent, trusty woman to be with a young girl when I am with my regiment. Constance would not like to leave Philip behind, and Philip would not like to be left; that is enough to invade the Stoughtons with. They are Christians indeed to take us in so frankly."

Preparations were accordingly made for the four. Denis Dargan was formally appointed viceroy and governor-general of outdoor affairs during his master's absence. Hannah's place of power and trust in the house was conferred on her second, Martha Ashford, an experienced young woman, who owned to thirty-five, and was believed to have a tender inclination towards Denis, which unfortunately was not reciprocated by Erin's son, for he had been heard to say with equivocal gallantry, "Shure it's far too good for the likes of me she is, bein' a sant all out; isn't it a pity she's not a thrife handsomer?" However, the Quakeress recommended Martha as a steadfast-minded maid. A trusty attorney was deputed to watch over the weightier affairs to the estate; and thus everything at the Elms was placed in good hands.

From the foot of Mount Holyoke to the city of Boston is not a journey of much consideration now, when a system of railways—the largest and most complete in the world—seams the United States in every direction, and threads the trackless wilds that lie between their western frontiers and the shores of the Pacific. A distance of some eighty miles before one was a different thing a hundred years ago; there were as good public conveyances in the long-settled American provinces as could be found in most parts of Europe at the time, and they were little to be boasted of. The family coach and the travelling chariot of English rank and fashions were to be met with among the wealthy planters of Virginia, but sober, thrifty Massachusetts had not yet given way to such pomps and vanities. There the country gentry still travelled on horseback, as their fathers did, and much after the manner of Delamere and his party—namely, the squire mounted on his own good roan, with his faithful housekeeper on a pillion behind him; Constance riding her gentle and well kept jennet; Philip on his pony trotting by her side, and a man in charge of the two pack-horses laden with their luggage bringing up the rear. It was on a cold, calm winter morning, when the sun was struggling through the mist that lay heavy on the eastern hills, and the land was white with its first thin coat of snow. They were going with their own good will, and only for a time; they might come back and see the old place any day; they had no fears for the people they left there; Green Mountain Boys or Minute Men would not molest them; yet, on rising ground above the bend of the river, Delamere and his daughter paused and looked back at the Elms. Was it a vague presentment of the strange trials they were to meet before the old home rose upon their sight again which prompted that long leave-taking look? Neither could have said; but it passed with the moment, and they rode onward to look back no more.

CHAPTER XII.—THE QUAKER FAMILY.

Allowing for the advance which most towns, and especially those of America, have made in the last

hundred years, Boston was at the time of our story as notable a city as it is at present. One of the oldest cities on Massachusetts Bay, and by far the largest and best built in all the New England provinces, it was virtually their metropolis—the emporium of their commerce, the high place of their fashion, and the home of their best society. Then, as well as now, Boston might have been called the Athens of the western world, from the acknowledged intelligence of its inhabitants, and the general cultivation of arts and letters. It might also have been called the nursery of American freedom, for in Boston began the first movements of the revolution. An ultra-royalist officer justly described it from his own point of view, in a letter to one who was destined to command the American army before its walls, and in many a famous field besides—to no other than George Washington: "This town is full of rank Whigs, stark mad for independency and the paying of no taxes to the king."

The squire and his company took a seaward direction and rode straight into Harbor Street—so named from its situation, and the extensive view of port and shipping that could be had from its windows. There they drew bridle before the largest house, a mansion of three stories—the lower of stone, the two upper of timber—with the street door in one of its high pointed gables, and arms of its first owner, a ship in full sail, with the pious motto, "My safety cometh from the Lord," quaintly carved above it. That house had been the wonder of the colony when it was built by one of Delamere's ancestors on the maternal side, some years before the accession of James II., and though old-fashioned at the time of which we speak, it was still considered a comfortable and very genteel residence.

The locality is altered in aspect and name; the house built by Delamere's ancestor has been swept away long ago by the march of civic improvement; but is was a pleasant sight for those weary travelers from the banks of the Connecticut, whom the fall of the winter evening had brought to their journey's end, to see the warm, red light streaming from its windows, and its door hospitably opened to receive them. Out of it stepped a man in the broad-brimmed hat and drab suit of Penn's people, the common designation of American Quakers at the time, and they knew him to be Jacob Stoughton. "Friend Delamere, thou art welcome, thou and all that are with thee," he said, heartily shaking the squire's hand. "Is this thy daughter? How fair and goodly she hath grown up! My young friend, I am glad to see thee!" and he shook hands with Constance too. "And this thy housekeeper? Friend Hannah, thou art very welcome for thine own as well as thy friend's sake; it is many a year since that stormy night when I found shelter in thy dwelling in the woods beside Lake Michigan. Come in," he continued, after some equally kind words to Philip and the man in charge of the pack-horses, the only part of the company of whom he had no previous acquaintance; "ye have all need of rest, and our helps will look after everything. The family had come to the door to bid them welcome, though the evening was intensely cold; they were introduced in Quaker fashion, and the difference of manners and customs was curiously illustrated by Delamere's stately bows and complimentary greetings, not to speak of his daughter's genteel curtsies in response to "This is Rachael, my wife; this is Susanna, our daughter; and this is friend Caleb Sewell, my partner in business, who has always lived with us."

Delamere had become acquainted with Jacob Stoughton years before, through Squire Archdale, whose calm wisdom and liberal mind had a charm for the worthy Quaker, though few of his people ever formed friendships with "men of the world." Constance remembered to have seen him occasionally at the Plantation, but his wife, his daughter and his partner were unknown to both her father and her till that evening. Jacob was a man more of Archdale's type than Delamere's but thinner and older than either of them, for though yet hale and upright, his face had the paleness of advanced age, and his hair was as white as snow. His wife resembled him in a remarkable degree; one would have taken them for brother and sister, and both must have been eminently handsome in their youth, for they had those finely-moulded features which, of all human beauties, suffer least from the ravages of time. Susanna, their daughter, had inherited the same perfect grace of

Nature's sculpture, but in her it was matched with a complexion of such dazzling fairness without tint or tinge of the rose, that it reminded one of Parian marble, and gave to the face and figure, especially when in repose, a statuesque and scarcely living look; and the effect was heightened by the color of her long and abundant hair, flax threaded with silver, as if the whiteness of her parents' age had descended on her youth, for they had married late in life, and Susanna was not quite eighteen. Thus, near to Constance in age, she was much of the same height and figure; but the dark lustrous hair, the rosy bloom, and the youthful animation of the squire's daughter were advantageously contrasted with the colorless beauty of the young Quakeress, which would have been lifeless too, but for her large blue eyes, softly bright and changeful as the evenings of spring, and yet they had a weary look at times, like that of one early destined to a better world.

Caleb Sewell was the young man of the house; by all appearance he had not yet advanced beyond thirty. His father had been Jacob Stoughton's partner in business, but he and his wife died while their son was yet a child, and left him and his portion to Jacob's care. The trust had been faithfully and kindly discharged. Caleb was brought up in the Stoughton's house, became Jacob's partner in process of time, and was to be his successor in business; yet nobody could be more unlike the friends with whom he lived. About the middle size and fresh-colored, though of rather a brown complexion, his frame and features were cast in a coarser mould than theirs. From his short, dark, and straightly-brushed hair to his shoe-strings, Caleb had a look of method and precision that was astonishing to see. There was in his face a sturdy seriousness that would not hesitate to speak its mind or do censor's work, if occasion required. He was a stiff subject, and not likely to conquer hearts, but he was also an honest, trustworthy man in every sense, and a devoted member of the Society of Friends.

The entire household held hard by the original principles and practice of their sect, which time has somewhat modified in both America and England. They eschewed not only the pomps and vanities, but the manners and customs of the world. Their ways were unfamiliar to the Delameres, accustomed though they were to the well-regulated and sober life of New England; but looking on the pleasant, cheerful parlor, where everything, from the wainscoted walls to the white table-linen, glistened with stainless purity and polish in the ruddy hearthlight, and on the placid faces, which from youth to age showed no trace of outward trouble or inward care, the squire especially felt—for he had come to the time when such things strike us—that his friends in drab had cast away both the chaff and kept the wheat of life, and that a heart weary with the world's falsehood and turmoil might find a haven of rest in the Quaker's home.

They kept earlier hours in that house than at the Elms. Early to bed, they were all astir next morning before the dawn of the day. There was no idle time in the Stoughtons' dwelling, neither was there haste or overwork, every one of the household was occupied. Jacob and Caleb in the concerns of the business, which was not only to be transferred to the sole management of the latter, but also from Boston to Philadelphia, whither the family were going; Jacob's wife in domestic preparations for the removal, in works of charity among the neighboring poor, and in the affairs of the Society, for friend Rachel was one of its preachers.

Susanna did most of the needlework and knitting. She had not been accustomed to woodland walks or long gallops over hill and dale like Constance. The Stoughtons had always lived in town, and as people did not move about in that generation as they do now, the ladies of the family had seen but little of the country. Moreover, Susanna's health was delicate from her childhood; she rarely went out in the winter, but would sit for hours close by the stove, marking linen, knitting gloves and stockings, and writing long letters to her cousins in Philadelphia. Of a meek and gentle disposition, and unacquainted with the "people of the world," she was shy with Constance at first; but the squire's daughter was naturally agreeable, easy and unselfish, a girl who would do her part anywhere, in work or play, and had sense enough to respect and esteem good people, however their manners and modes of thought

night differ from those to which she had been accustomed.

So the young people became good friends, and in some degree took to each other's ways. Constance had little of her father's company, and so had the Stoughtons. He had taken an early opportunity to call on the governor. Royalists of his stamp were not numerous in New England. His offer to serve the king was accepted in the most flattering manner. He was presented with a major's commission in a regiment newly raised in Canada, and appointed to a place on the governor's staff. The squire's pride was gratified by these marks of governmental esteem, and the man of note they made him in the eyes of all subalterns. His old military inclinations came strongly back upon him in his downhill and solitary days, and something of his youth seemed to come with them. He found old friends, too, in the Canadian regiment and among the British garrison in Castle Williams; men with whom he had served long ago, when Archdale and he were comrades in arms for the same cause. The necessary attendance on his official duties, the company in the mess-room with their loyal toasts and speeches, and an occasional talk over old times and adventures with a brother officer beside the fire, occupied Delamere's time, and were more after his own heart than the quiet, serious ways of the Quaker family. He never failed to show them respect and gratitude, and offered more acknowledgments than they would accept for their kindness to him and his. He allowed no day to pass without a call, however brief, to see, as he expressed it, how his girl was behaving herself; but the squire, in common with the officers of the Crown, and the people of Boston, got weightier matters to think of before that dreary December came to its end.

CHAPTER XIII.—STRANGE DOINGS IN BOSTON.

Throughout all England and English peopled territory, the eighteenth century, especially its latter half, was the reign of tea. The costly leaf, as it might well be called, when, according to Mrs. Delaney, good tea could be obtained only at thirteen shillings the pound, was identified with gentility, with letters, in short, with good society in general. It enlivened Mrs. Montagu's blue parties and the antiquarian Wednesdays of Sir Hans Sloane. It smoothed for the time the ruggedness of Johnson's temper, for it is on record that he never insulted anybody so completely at tea as he did at dinner. It almost charmed away the clouds that darkened over Cowper's genius, and was even said to mollify the royal stiffness of old Queen Charlotte. By moralists of or for the humbler classes, tea was dreaded and denounced as a cause of extravagance more ruinous than the love of finery is supposed to be in our generation; for, like the latter, its dominion was over the fair sex, and it was held in special horror by husbands and fathers as the temptation which cottage beauty could not resist.

How strangely are the small and great of human affairs linked to each other. "The cup which cheers but not inebriates," as Cowper sings, became, under the management of selfish and short-sighted politicians, the wedge which split forever the connection of England and her American colonies. The question at issue between them was to govern and tax themselves by their elected representatives. That right had long been established in the old country; its infraction brought Charles I. to the scaffold, and yet by one of those eclipses which prove the fallibility of human judgment, in national as well as individual cases, neither the English people, the English parliament, and still less the English king, appeared to see that what was wrong on the one side of the Atlantic could not be right on the other. Ministry after ministry had attempted to impose duties on every consumable article, and taxes under every pretext, till the Homespun Wearing and Non-importing Association had banished British manufactures and British merchandise from the American markets. Then Lord North and his royal master resolved to try the tea temptation on a whole people, and satisfy the East India Company, whose complaints were both loud and deep, for their warehouses were filled to overflowing with the expensive store; so they abolished all the taxes they had never got paid, and allowed tea to be shipped to the American ports at one-fourth of the duty charged upon it in England. The Tories on both sides of the Atlantic were enraptured with this gracious and

liberal policy, which they thought must silence the discontent of every province from Maine to Georgia. But the American people were not to be won by the bait which caught village belles and pretty wives in the old country; they stood by the right of self-taxation, would pay no duty imposed by the English parliament, nor suffer the taxed tea to be landed on their shores. So when three ships laden with it cast anchor in Boston Harbor it was evident to men of all parties that the gauntlet had been thrown down, and nothing but a trial of strength could be expected.

Never did tea create such a ferment in any town. Public meetings were held and patriotic speeches made in every direction. There were gatherings of the populace round the Tree of Liberty on the Common, and assemblies of the municipal authorities in the Town Hall. The tea was the theme of discourse in the market-place, and on the wharfs, at the corners of streets and by family firesides. It gave occasion for a fair exchange of abuse between the Whigs and Tories; proved the cause of many a bitter quarrel between old neighbors, and of sundry stand-up fights among the less cultivated of the population. Still the three ships rode at anchor, and the people most to be sympathized with were their captains and their crews. The town-council would not allow them to land a chest of their cargoes; the civil governor would not sign the permit, without which they could not leave the harbor, though deputation after deputation of citizens waited upon him for that purpose; but his Excellency escaped their importunities at last by quietly going out of town.

As the law then stood, in American ports a ship was allowed but twenty days to discharge her cargo under any circumstances; if undischarged at the expiration of that time, it became the property of the government; and with that double dealing which is the sure characteristic of weak administration, and as surely brings upon them public hatred and contempt, the men in power at St. James's, and their deputies in Massachusetts were bent on getting possession of the rejected tea, and thus obtaining a swindler's triumph over the American patriots, by having it sold and distributed throughout the land at their pleasure or convenience.

Jacob Stoughton's house was perhaps the only dwelling in all the town of Boston where the tea question made but little din. The worthy merchant had taken no part in the public agitation of his time, though he believed the American cause to be just. Jacob, in common with the primitive Quakers, held that resistance to constituted authority, or even to take arms in self-defence, was not lawful for a Christian.

His partner, Caleb, maintained the contrary opinion, for he was a Williamsite—that is to say, a disciple of brave old Roger Williams, who was banished from Massachusetts in the persecuting time, when its Puritan inhabitants considered the Indian incursions a special judgment upon them for not enforcing the laws against Quakers, and who in his banishment founded the colony of Rhode Island, and in his old days took up arms to defend it against the French and their Indian allies. Notwithstanding the external formality that appears in the Society of Friends, their rejection of dogmatic teaching and belief in inward light allow larger scope for individual opinion on many points than can be found in any other body. Thus, Jacob and his partner agreed to differ; and neither being disputatious, the perturbation outside found no echo at board or hearth.

Friend Rachel concerned herself about nothing but spiritual or domestic things. Susanna followed her mother's example, and so it came to pass that the squire's daughter knew not what was stirring only by the chance words she heard in the streets, or read on the public placards, which were quickly torn down. Major Delamere—he rather preferred the military title—was so boiling over with loyal indignation at the ingratitude of the Boston people for the favors showered upon them by king and parliament that he did not care to trust himself in such unsympathizing company as the Stoughtons, and was, moreover, engrossed by some new fortifications they were getting up at Castle Williams. Constance therefore saw little of him, and the above-mentioned intimations had been lost to her for some days. The weather was bad, with a keen north-easterly wind, and heavy showers of sleet and snow, which terminated at length in the usual hard, clear frost.

Mrs. Stoughton and Susanna had both caught a bad cold; but the former had, in Quaker phrase, a great concern on her mind regarding a poor sickly widow and her four young children, who lived in a humble street at the opposite end of the town, and she had reason to fear they might be in sore distress. A long walk on a fine frosty day was no difficulty to a girl brought up at the foot of Mount Holyoke; and Constance cheerfully volunteered to go with her faithful page, Philip, and look after the widow.

They started early in the afternoon, Philip carrying a basket well filled with things helpful to the poor family; but when they reached what had been the widow's residence, she and her children had removed to cheaper lodgings, the direction of which their former neighbors could not clearly point out, and a good deal of time was lost in attempts to find them. They were found at last, however; and Constance and her page turned homewards rather tired, but glad at heart, for they had been instrumental in relieving great necessity, and were bearing back the blessing of the widow and fatherless to friend Rachel.

The early night of December was falling fast. Boston, like most towns before the discovery of gas, was but dimly lighted; and trusting to their knowledge of its old intricate streets, they took what seemed to them a short cut, in order to reach home before it grew quite dark.

The lanes and by-ways through which they passed were quiet enough, or rather appeared deserted, for there was nobody to be seen, and very few lights in the houses; but as they walked rapidly on, sounds of hurrying feet and mingled voices, like those of a great multitude, rose before them, and, turning out of a narrow alley, they found themselves close by Faneuil Hall, in Dock Square.

Here lady and page stood fairly bewildered at the scene which burst upon them.

The great square was filled with a crowd that swayed and surged like the waves of a stormy sea. The great building, which comprehended a market-house and a town-hall, was lighted from ground-floor to roof; every door and window stood wide open in defiance of the frosty night, and they were jammed with eager listeners. On steps, on rails, wherever foothold or hanging-on room could be found, the people clustered like bees in the swarming time. That evening the public excitement had reached its height; a meeting of leading patriots was held in Faneuil Hall, long after known as the nest of the revolution, and the townspeople were gathered within and without to hear the proceedings; for, with the last stroke of midnight, the twenty days allowed to the laden ships would expire, and the British governors must have their own way on the morrow. Not knowing what to think or do, Constance and Philip stood still together. To cross the crowded square was simply impossible, and they knew no other way to get home.

Suddenly the crowd stood stock still too, and a breathless silence fell on the gathered thousands. They saw a figure rise in the open hall above, and the deep, distinct voice of Samuel Adams said, in tones that every man could hear, "This meeting can do no more for the country."

"We can throw the cause of its trouble overboard," said a voice without, no less loud and clear; it made Constance start as if she had heard a trumpet-blast; for that voice had spoken to her in softer tones beside the Connecticut. But was that an Indian yell that followed it? She had no time to think; the meeting and the crowd were breaking up now, and in trying to avoid their homeward rush, Philip and herself were driven into the very midst of a band of Mohawks in full array, hatchets, scalping-knives, war paint and all.

The red men of that handsome but ferocious tribe were no rare sight at the time in Massachusetts, especially in the western parts of the province.

Constance and her page, in their own extensive rambles, had frequently seen their hunting parties passing through the Holyoke woods, or over the fords of the Connecticut; but both were struck with terror to find themselves in the midst of so large a body of Indians. Before they could retreat, the chief of the band caught Constance by the arm; but she knew the voice that said in her ear, "This is a terrible place for you, Constance; come with me, and don't be afraid; I am Sydney Archdale."

"Oh, Sydney, have you gone to live among the Indians?" said the bewildered girl.

"They are not Indians, but Minute Men of my company. Come along; follow us, Philip, my boy, if you can." He drew her arm into his, and with the other warded off the pressure of the crowd, till they reached an arched passage between the warehouses which occupied that side of Dock Square. An old negro, with a lantern in his hand, stood in the opening, to whom Sydney said, "See them safe to the top of Harbor Street," and then whispered to Constance, "Get home as quickly as you can, but say nothing to anybody of our meeting here; and if you hear any noise in the night give no alarm, but look out to the old wharf, for I know your window commands it. Good night! He pressed her hand to his lips in the old fervid fashion, and in the next moment was lost in the crowd beyond.

Without a word the negro conducted them to an iron gate at the farther end of the passage; this he opened with a key and looked again behind them. That negro was the watchman of the warehouses, but neither Constance nor Philip could ever retrace the network of lanes and alleys through which he led them to the top of Harbor Street, and having thus fulfilled his orders, he stayed not for thanks or acknowledgment, but walked away in unbroken silence.

Constance had just time to warn Philip against mentioning the encounter in Dock Square, when they met Caleb Sewell on his way to search for them. He was the man in all household emergencies of the Stoughtons. They had been rather alarmed by the young people staying so late, but the widow's removal, and the time spent in looking for her new home, accounted for the delay to their entire satisfaction. There was no sign of the great meeting and the excited crowd in that quiet street. The evening meal was served, the evening prayers were said, and the Quaker family retired to rest at their accustomed hour. Constance was tired with the long hours of walking about Boston, but she could not sleep, her thoughts were occupied with Sydney Archdale. What business had he and his Minute Men on hand, and what did he mean by telling her if she heard any noise in the night to give no alarm, but look out towards the old wharf? "There was a time when Sydney would have spoken more plainly to me," she thought; "he is growing too great a man among the Whigs to have any confidence in his old companion now; maybe that is only to be expected. My father is a major in the king's service, hand in glove with General Gage, and everybody knows that men are changeable. Sydney may have seen somebody else. He was kind this evening, but ready enough to part with me."

She had reached this point in her melancholy musings when the silence without was broken by sounds that came indistinct and muffled to her well-enclosed bedroom. Was that the noise of which Sydney had warned her? She rose hastily, threw a warm cloak about her, stole to the window, drew the curtains, unbarred the shutter as quietly as possible, and looked out upon the night. It was cold and dark, as the nights of December are apt to be, but the old wharf seemed in a blaze of torchlight, so were the three tea ships riding there at anchor. She could see their dark hulls and white rigging stand out more conspicuously than they did by day; and as her eye grew accustomed to the strange lurid lights and deep shadow, Constance saw that the wharf was filled with armed men—the very Mohawks she had got among in Dock Square! They stood there as fixed as trees in the red man's native forest. On the shore beyond a dense crowd had gathered; there were sounds of hurrying feet from all the neighboring streets and lanes, but not a word or voice broke the silence of the night. There were sounds from the ships, too, like those of unloading. Men were busy there getting out the cargo, but it was not to land it. She heard the crack of hammers and breaking up timber, as chest after chest of the precious tea—for which many a poor wife in England sighed in vain—was burst open and emptied sheer over the bulwarks into the deep water of Boston Harbor, to be washed out by the next ebb-tide to the broad Atlantic. It was some time before Constance could clearly comprehend what was transacted almost before her eyes; and then the work came to an end, for all destruction is quickly done. The men who had executed it quitted the ships; the armed guard retired from the wharf; the crowd hurried away as voiceless as

they came; and the old wharf, the harbor, and neighborhood were left in the silence and darkness of a December midnight.

CHAPTER XIV.—RIVALS ON BOTH SIDES.

When Constance had closed shutter and curtains and retired from the window, she sat for some minutes wrapped in her cloak, and thinking of the scene she had witnessed. Notwithstanding her youth and small acquaintance with public affairs, the thoughtful, intelligent girl knew that a memorable thing had been done that night—a deed which those who saw would tell and talk of to another generation when their own heads were gray and its consequences had become history. Within the last hour a handful of Massachusetts men had hurled defiance at the power of Britain, and challenged the strongest government in Europe to mortal combat with them and theirs. She knew who had been mover and leader in the action; but what might its end bring to him, to her father, to herself, and to their common country? There gathered the cloud of fears that ever darkens the unlifted cloud of futurity to man—fears sufficient to bewilder an older and wiser head; but her youth and unsophisticated mind sought refuge from them—where the strongest and the weakest may alike find rest—in reliance on the all-directing, all-disposing Providence. Constance knelt at her bedside, and prayed fervently for her father, for Sydney Archdale, for herself, and her native land.

Prayers not less earnest and heartfelt went up that night from many a New England home, to which the news was brought by passing runners—a class of men that have died out long ago, for their vocation has been superseded by the appliances of modern life, but in those days they were the telegraphs of the American people; for the most part of French or Indian origin, and always natives of the backwoods. They were acquainted with all the short cuts of the country, wild or settled, and their exploits in conveying intelligence against time and distance, argue a swiftness of foot scarcely credible in our steam-carried generation. As soon as the last chest was emptied over the bulwarks of the third tea-ship, three runners started from Boston in as many different directions, and all the towns along Massachusetts Bay, the inland villages, and outlying farms, as far as the Green Mountains, were woke up with the news before the break of day.

Yet in the town where it was done the transaction was unknown to the government authorities till an advanced hour in the morning. Then proclamations were posted up in all directions, offering large rewards for any information that might lead to the apprehension and conviction of the "wicked and malicious persons" who had forcibly boarded the East India Company's ships, and destroyed the tea consigned to the civil governor's two sons.

"Three hundred and eighty chests, they say," said Caleb Sewell, who first brought the news to the Quaker household, when he came in from business at their early dinner-hour.

"Yes," said Jacob; "it is grievous to think how much of the Lord's good gifts are lost to the world and given to destruction, in the unreasonable quarrels and evil haste of men. Armies trample down the standing corn when they make speed to shed each other's blood; they waste the land with fire, and turn fair fields and homesteads into desert places, that those whom they call the enemy may find no sustenance therein; and thus, in the harbor of our own city, those many chests of the heart-cheering tea, brought from the far east with much cost and labor of man, have been cast into the deep salt water, that the man whom they call George III. might get no tax upon it."

"So it is, friend," said Caleb; "and thou wilt be grieved also to hear a report which came to my ear this day. It is rumored in the city that friend Archdale's son was the chief contriver of that business, and leader of the men who cast the tea overboard."

"I am sorry to hear it," said Jacob, "for his father's sake, and for his own, too; indeed, I had thought him inclined to better things."

"He is a rash young man, friend Jacob, and one that will come to an evil end, except Providence prevents it, for the pursuit after him is hot, though carried on in a secret manner; and if he be taken, I fear his life will pay the forfeit." Caleb was ostensibly addressing the

head of the Stoughton family, who sat beside him, but he was looking from under his brows—a mode of stealthy observation which the partner had—at the opposite side of the table, where, according to old Quaker custom, the ladies of the household had their seats.

Terror took hold of Constance at first; she thought that stealthy look must be intended for her, but the next moment she saw that it was directed to Susanna, who, as Sewell came to his ominous conclusion, dropped the glass of water she had just raised to her lips, and seemed ready to drop from the chair herself, so deadly pale did the poor girl's face become.

"What is the matter, dear child?" said her father and mother in a breath; and Caleb ran to her assistance.

"Oh, nothing," said Susanna; "but the glass slipped from my fingers. I am not well, and will go to my own room." She rose hastily and left the table, but in a few minutes, while her mother was yet remarking that Susanna was never strong in mid-winter time, and she thought their removal to Philadelphia was a providential dispensation, for the climate of Boston was too severe for the child, the young Quakeress returned all herself again, and the dinner passed without further incident or interruption.

Nobody—not even Caleb—seemed to have taken note of the small occurrence; but it cast a new light or shadow on the mind of Constance Delamere. There was another than herself interested in Sydney Archdale, and the partner guessed it. Had he taken that way to make the matter out, or were his predictions regarding the "rash young man" the dictates of secret and unsuccessful rivalry?

There is no life so composed and guarded that those disturbing influences cannot enter it, especially in the days of youth—the heart's spring-time—when it sends forth blossoms fair or faint, according to the soil. Business, precision, and the interests of his sect, did not entirely fill up the thoughts and days of Caleb Sewell. The sturdy, methodical, brown-complexioned young merchant had a dream of the fair and delicate Susanna, who was, moreover, his partner's only child and heiress; and he had also his fears or misgivings of being barred out by a man of the world.

That afternoon Constance and Susanna sat together in a small cheerful room on the first floor, which they had appropriated as a sort of private parlor for themselves; there the girls kept their favorite books and pieces of industry, and there they were accustomed to talk more freely and confidentially than in the presence of their seniors. Susanna sat silent and thoughtful for some time, as if revolving something in her own mind, and then said, without looking up from the linen she was marking, "Constance, dost thou think friend Caleb was truly informed in what he said to-day concerning Sydney Archdale?"

"I don't know," said Constance. It was difficult to keep up the appearance of unconsciousness in that truth-telling house, but she had had some practice with her father at the Elms. "Young Archdale is a Whig; and many of that party would think the destruction of the tea a brave action, and a vindication of their country's rights."

"May be so; and Caleb does not speak so hardly of him, for he is of the same opinions. I have heard him say that if British troops ever invaded these provinces, he would take up arms and cast in his lot with the New England people. But, Constance, dost thou think?"—there was a slight tremor in Susanna's tone—"that young Archdale will be taken by the king's men?"

"I don't think he will," said Constance. She was better informed on the subject than the secluded Quakeress, and, therefore, had no fears. "Most of our country people are of his principles, and he has many private friends."

"Ah, no doubt he has friends who would hide him from them, Constance; I would hide him myself." The Squire's daughter looked up in pure surprise. Never had the damask rose a brighter color than that which flushed Susanna's face; the fervid heat of youth was there under the settled snow; but what a bloom of life and loveliness it gave her for the time! "I mean—I mean," she continued, bowing her head till the flushed face was hidden by the snowy linen, "my father and mother would hide him; you know we are bound to shelter those that flee from their enemies; and besides

that, I must tell thee that we have great right and reason to do anything in our power for young Archdale. Thou knowest that his father and mine have been familiar companions for many years; and when Sydney was at Harvard College, and had not gone so openly against the government, he used to be very friendly with us, coming often to our house, and even attending our meetings, so that my mother had hopes he would one day give up the world, for few young men, she thought, were so free from its sins and vanities. But that is not all I have to tell. There is a farm called Ottersbourn in the country, three miles above Concord. The family who live there belong to our Society, and we have been accustomed to spend some weeks with them every summer, when Boston grew hot and dusty. My mother and I were there last year in the seventh month. Business kept my father in town, but he came to see us once every week. I was stronger that season than I am now, and used to go out with the youngest daughter, Elizabeth, for half days together, gathering wild flowers and berries along the banks of the stream that gives the farm its name—Ottersbourn. It rises in the hills far west, and falls into Charles river. The hot summer time makes it almost dry, a child could cross it in any direction; but when there happens to be rain in the hill country, the bourn is subject to great freshets, which come down at once and without warning. Elizabeth and I had gone out one day when there was only a thread of water in its channel; we saw finer berries on the opposite bank than those we were gathering. She immediately crossed the stream; I lingered for some minutes to get the best of the berries, and then tried to cross too, but I had not got half way over when we heard a mighty roar of water, and down it came like a moving wall. I tried to turn back, but the freshet was upon me, and swept me away down the stream like a straw before the wind. Elizabeth ran for her life. The water was rising over bank and meadow; she cried for help, and so did I. There was none of the farm people within hearing, but Sydney Archdale was out with his gun in the neighboring wood. He heard us, and came to my rescue, pulled off his coat, plunged into the roaring flood, and caught me as I was sinking. I remember nothing more, for I was insensible and nearly drowned; but they told me afterwards how he kept my head above water, swam with the current, and brought me safe to land a long way from the farm; then carried me home in his arms to my poor mother. She was bending over me when I came to myself; but Sydney had run to Concord for a doctor, with whom he came back, and stayed with my mother till I was out of danger. He would never listen to her thanks or mine, but made light of the matter, saying any man could and would have done the same, and it was he that should be thankful to Providence for bringing him to the spot in time. Now, Constance, dost thou not think that I and my family have a right to remember that young man in our prayers—ay, and to help and serve him in time of extremity?"

"Indeed, I do," said Constance; she was thinking that Sydney had never mentioned the adventure at Ottersbourn to her. True, he was not the man to rehearse his own exploits, but might not the fair face of the young Quakeress have as much to do with making him so long a stranger as the loyalty of her father and the vigilance of government spies?

Susanna did not guess what was passing in her companion's mind. "I knew thou wouldst think so," she said. "My father has a great concern on his mind regarding Sydney; but my mother has lost hopes of him now. She says he has returned to profane ways, and also that it is not right for a girl in our Society to think of a man of the world, because her youngest sister was lost by so doing."

"Lost!" said Constance, not knowing what to make of the statement.

"Yes, that is what we say of those who slide away from us; I know not if it be a right saying," answered the mild Susanna. "My mother's sister married a sea captain; she tried hard to bring him in among the Friends, but could never get him further than a promise against swearing, and she was never happy. My mother says none ever are that leave our Society, but those that come into it attain to great blessedness, even on this earth, for" (added she humorously) "she knew several maids who married Friends, having become such themselves—for none of our people would take in marriage

one of the world. Constance wouldst thou marry a Quaker?"

"If I liked him," said Constance, not wishing to be too explicit on the point.

"Ay, but wouldst thou like a Quaker?" and there was a look of archness in Susanna's face that one would not have expected to see there. "I know thou wouldst not, Constance, for I have heard that thou art engaged to a king's officer from the old country, of high birth and heir to a great estate; and thou knowest there is nothing more unlike a Quaker than such a man as he."

"Who told you that, Susanna? Whoever it was they did not tell you truth, for I am engaged to nobody, from the old country or the new!"

"Well, Constance, I heard it; and that you had refused Sydney Archdale on account of the captain—that is his title in the world, they say—which I thought very strange; but it was not from himself I heard it, remember, though he used to speak of thee to us. Tell me, Constance, did he ever speak to thee of me?" and Susanna's head bent down to the linen once more.

"No doubt he did, though I cannot recollect it. I have had little conversation with him for a long time. My father is adverse to his principles, as you know, and Sydney is occupied with the doings we hear of too much to mind anything else, I suppose," said the cunning Constance.

"Ah, that is the worst part of him, as my mother says. If he had joined our Society in time"—Susanna spoke with a sigh—"he would have escaped all those snares and dangers of the world. It is a safe thing to be a Friend, Constance. What dost thou think of Caleb Sewell? Wouldst thou like him?"

"I don't think I should," said Constance.

"Yet he is a just, good man; and my mother says we should choose our partners in marriage only for inward excellence and understanding, because the chief end of marrying is, that the husband and wife may help each other in their pilgrimage to the New Jerusalem. On that account she and my father wish me to marry Caleb, but I cannot bring my mind to like him."

"Oh, but you may change your mind and marry Caleb yet," said her more lively companion.

"No, Constance, I will never marry him, nor anybody else. No doubt it is unwise and wrong in me, but I like none of our people except as Friends, and I would not fall away to the world and be cast out of our Society, because it would grieve my father and mother; besides, a man of the world might not care for me. I will never marry, Constance; and sometimes I think it would be well to wean my thoughts away from such matters. I am not strong and active like other girls; the nights are often long and sleepless and the days heavy with me, and I have inward warnings that it will be my lot to go early home."

There was a native nobleness in Constance Delamere that raised her above the commonplace woman's fear and hatred of a rival. If Sydney had fallen away from her for the charms of a newer face—and there was no certainty of that—Susanna was not to blame; she was still her friend; and even had they been strangers, the sad and serious tone of the young girl's talk, the resigned, patient spirit it disclosed, so hopeless for this world and so prepared for that to come, would have engaged her sympathy and secured her regard.

"No, no, Susanna," she said, bent rather on cheering up a less buoyant mind than speaking her real thoughts, "you will get strong and well in your own Philadelphia; our New England climate is a severe one, and trying to most people from other countries, they say. You will get strong and well, I know you will, and see somebody to your mind, to your father and mother's mind too, I hope"—Constance knew that would not be Sydney—"but whoever it may be, mind you invite me to the wedding."

"Thou wouldst not care much for a Friend's wedding, after the gay assemblies thou hast seen," said Susanna with a melancholy smile; "at any rate the like will never be my lot; but the Lord's will be done. It is the best for me and for thee, Constance—ay, for us all, if we could but think so"—here she stopped short as her mother stepped into the room.

"Constance, my good girl, I want thee to do an errand for me; thou wilt not take it amiss that I ask thee rather than Susanna, because of her cold?"

"No; indeed I should be sorry if you asked Susanna to go and me here," and the squire's daughter sprang up to show her readiness.

The errand was regarding certain delicacies which the family storekeeper had promised, but forgotten to send. The evening was approaching, and with it the supper-hour. The table was a subject of high consideration to the Stoughton's house; and as all within its walls were busy, and Philip had got leave to go skating with boys of his own caste, Constance set forth alone, with a basket on her arm in the homely fashion of old Boston, to bring home the required good things. The distance was short, and the neighborhood particularly quiet at that hour. She had succeeded in her mission, and was returning, deep in thought over Susanna's tale about the Ottersbourn, when, on passing a recess between two of the irregularly-built houses in Harbor street, her eye was caught by the figure of a man standing in its inmost corner, as if in wait for something.

His face was turned away from her, and he was dressed in the costume of the Mohawk band outside Faneuil Hall, except that the hatchet and feathers were wanting, but that figure was Sydney Archdale! Was he aware of the hot though secret search after him which Caleb Sewell had mentioned? The thought of the risk the young man was running overcame every other consideration; and stepping into the recess, she said almost in his ear, "Is it you, Sydney?" The man turned quickly round, and what was her consternation to see that it was not young Archdale, but a veritable Mohawk about the same age, and as fine a specimen of the red race as the former was of the European.

Constance would have turned and fled, but before she had fairly seen his face, the Indian had stepped before her, and there he stood barring her passage, and gazing upon her with a look of unmistakable admiration.

How much is the tongue needed in the service of the intellect—how little in that of the heart! The most flattering compliment or high-flown eulogy that ever gallant uttered could not have expressed the power of her beauty, and his complete subjugation more clearly to Constance than did the eyes of that son of the forest, who could address her in no other language. How long he would have stood before her it were hard to say, but when the first shock of astonishment had passed, the girl's sense and courage came to her aid. She tried a brief apology for her mistake, but the Indian shook his head—her words were unintelligible to him. She then made him a sign that she wished to pass, and with the native courtesy of the red man he made way for her, but followed her steps into the street, and gazed after her as she sped quickly to the Quaker's door.

The people of that house rarely looked out, so none of them got an inkling of her adventure with the Indian. Constance gave them an excised edition of it at the supper table. Oh! not a word was there about the remarkable resemblance and her consequent mistake; but then she learned from Jacob Stoughton that the young Mohawk was chief of a tribe located near the western borders of Massachusetts, between whom and certain Quaker merchants, including himself, there was a trading compact of long standing, which brought their chief and some of their most considerable men once a year at the same season to Boston to exchange their furs and other products of the wilderness for the white man's goods.

"The elder men have made the journey so often that they can speak good English," said Jacob; "so could their former chief, with whom I was well acquainted, but he departed this life last fall; and of this young man I know nothing, except that he speaks only his native tongue, that his name is Kashutan, and that his people hold him in high repute for justice and generosity, which I also believe; but," he added, to the relief of Constance, who had some fears of street meetings with her Indian admirer, "they will all set forward for home to-morrow."

CHAPTER XV.—A DANGEROUS TRUST.

The year that came was a trying one for the most flourishing province and city of New England, while tea-laden ships that chanced to get the news within sight of American ports, turned quickly homeward, to avoid a sacrifice of their cargo similar to that made in Boston Harbor. Swift sailing packets brought tidings of wrath and vengeance from the old country. As not a

single man of the tea-destroying company could be caught, the British Government determined—perhaps it was natural for a government in such circumstances—to make an example of the rebellious town and province. Did anybody ever find out how it is that bad measures can be got through parliaments so much more quickly than those that are wise and good? In hot haste they passed the Port Bill, and rescinded the provincial charter. The former closed the ports of Boston and Charlestown, and thus, at one blow, struck down a commerce which had been the growth of one hundred and fifty years, and was known to send out annually a thousand ships. By the latter measure, all colonial rights were abolished, all public officers dispossessed, and their places filled by men of royal appointment. Nevertheless, Massachusetts kept a good grip of her charter; it was not to be set aside by a parliament sitting in Old St. Stephen's. England's blood rose up before England's face in her colonists, to prove them truly of the same kith and kin. Neither the courts, the town-councils, nor the people would tolerate the crown-appointed men. The old office-bearers might go out, but the new ones dare not come in, so business, law and justice were brought to a standstill. However, the country people kept things lively in a different way. After the fashion of the Presbyterians of other days, they made a solemn league and covenant—it was not against Popery and prelacy this time, but the importation and use of British goods. The authorities denounced it by proclamations, which were put up in every market-place, and published abroad by criers; but the people tore down the placards, and chased the criers home. The land was preparing for more serious contingencies—every township had its company of volunteer militia; every village resounded with the sounds of fife and drum; popular sports and pastimes were neglected for military drill; and stores of arms and ammunition were said to be accumulated in secret places.

The capital presented a less excited but more singular aspect. General Gage was there in great power and perplexity, with five regiments encamped on the Common and quartered in the State House, and so many ships of war in the harbor that the town looked like a place invested by land and sea. Boston had always been a stronghold of Whigs, it was now become a refuge of Tories also. Finding it neither prudent nor pleasant to remain in districts where they were commonly called enemies of their country, all the royalists of mark crowded in beneath Gage's sheltering wings. The ladies gave spinning parties, an institution of the period in as high *ton* as our own five o'clock teas; and the gentlemen beset the general with inquiries and requests, suggestions and advices, till the luckless commander declared—it was to his private secretary—that Major Delamere was the only loyal subject in the province who was not the plague of his life!

There were greater evils in the city than those that vexed its military governor. The closing of Boston port had closed many an avenue of industry and earning against trading and working people, and brought distress into many a home. It was true that help came to them from most of the American towns and provinces—the Carolinas shared their rice, and Virginia and Maryland their maize, with the sufferers for the common cause—but much was left for private benevolence to do, and in some instances it was nobly done. Mrs. Stoughton—otherwise Friend Rachel—spent half her time inquiring into the wants of her poor neighbors, and sent Constance, Susanna and Philip forth on errands of distributing charity. Delamere impoverished himself in relieving the necessity around him, and often employed his daughter's hand when he did not wish his own to be too much seen. "Never ask whether they are Whigs or Tories, child," was his generous but unnecessary counsel; "it is not people's principles, but their need, we should think of in cases of this kind."

The squire was not improving his fortunes in Boston, but his military reputation had risen high enough to be the envy of many a provincial officer, for General Gage was fortifying Boston Neck, in order to have in his own hand the key of communication between the disloyal city and the mainland, and Delamere had been appointed to superintend an important part of the works. They consequently saw less of him than ever in Harbor street; but he found time to tell Constance, under the seal of secrecy, one day, what General Gage had told

him regarding Captain Devereux, namely, that the captain had arrived safe at New York, and been immediately despatched to England on an important mission, which allowed him no time to write to his friends at the Elms, but he was coming back with one of the regiments that were to bring the American provinces to their senses, and they should hear of him on the banks of the Connecticut.

Constance would rather have heard news of Sydney Archdale; but there was none to be had for many a day, till one evening, as they sat at supper, Jacob Stoughton said to his business partner, "Caleb, dost thou think there is any truth in a report which one told me this afternoon, that friend Archdale's son has got a colonel's commission from the Provincial Congress, and is raising a regiment of militia in his native valley?"

"It may be true, for I have heard the same report," and Caleb's face took the look of hard self-restraint it always assumed when a subject was disagreeable to him; "and to my mind it manifests much conceit in so young a man to take upon himself such an important office, not to speak of his thereby embroiling the country. Trust me, friend Jacob, he is one of those men whose headstrong forwardness will ruin the American cause."

"He is raising militia in the old home, and he has forgotten me," thought Constance; but she gave no sign of her thoughts by word or look.

"Father, said Susanna, while her pale cheeks flushed, and her soft eyes brightened, "there are men of age and wisdom in the Provincial Congress; dost thou think they would give any man a place of high command except they thought him fit for it?"

"Thou art right, my daughter; they would not," and he smiled on her approvingly, while Caleb laid down his knife and fork and stared at her as if she had talked of the world coming to its end, then took up his weapons again without a word, and ate on with great determination.

Except that both were good and dutiful, there was no point of resemblance between those two girls without or within, and yet their young lives were crossed by the same unlucky line; each had fixed her first affections on a man every way worthy, but separated from her by impassable barriers, and each by her natural guardians was destined for another.

The dead-lock in all civil business kept the Stoughtons in Harbor street many a month beyond the time fixed for their removal. They were anxious to go, as rumors of growing hostility between the people and the government thickened every day. An insurrection was apprehended by all parties, but few imagined it would extend farther than New England, though the Virginia House of Burgesses had appointed a day of prayer and fasting for the closing of Boston Port, and a congress of delegates from all the American provinces were sitting with closed doors in Philadelphia. No such demonstrations of discontent had been made there as in the North, and the Quaker family hoped to find peace and safety in their native town. Partly by their earnest invitation, and partly because he saw no other arrangement suitable, Delamere agreed that his daughter, Hannah Armstrong, and Philip should go with them. It was hard to send Constance so far out of his sight, it was hard for Constance to leave her father so far behind, but all Delamere's relations had nearly as distant homes. The greater part of them had been estranged by his ultra-Toryism, and its consequences at the Elms. He might have to march anywhere with his regiment; and where could his daughter be so safe, so well cared for, and so much at home as with the kindly Jacob and Rachel, and with her young companion, Susanna?

Jacob Stoughton's affairs were settled at last, and the family prepared to quit the dwelling they occupied for so many years.

There were no disturbing rumors from the country that day, and everything seemed quiet in the town. The Stoughtons' friends, all but Delamere, had called and taken leave of them with many a good wish and many a kind farewell; everybody was getting ready for departure, and so was Constance, when Philip, who had been out on some needful errands, stole to her room-door and whispered, "Miss Constance, as I came through Blackstone's Alley, a gentleman standing close by the garden fence slipped this into my hand," Philip showed a half-dollar, "and said, 'Can you take a mes-

sage to Miss Delamere, and let nobody hear it but herself? 'It's my opinion I can, sir,' says I. 'Well,' says he, 'tell her a friend of the two Archdales has something particular to say if she will come for a moment and speak with him over the fence here.'"

"What sort of a gentleman was he, Philip?" said Constance, wondering what this strange suggestion could mean.

"About as old as your father, miss, but not so grand and handsome as the squire looks in his new uniform. He has a grave, good face, though; I shouldn't wonder if he was a minister," said the observant page.

Constance hesitated, but thinking that he must have something particular to say—it might be regarding Sydney—stepped out, and posting Philip at the back-door to watch and give signal of danger, she hastened to the appointed spot. The fence at that part, though substantial, was low, and looking over it was a face that Constance recognized at the first glance as that of Dr. Joseph Warren, a gentleman whom she had often seen visiting at the Plantation, and Sydney had told her that he was the Boston member of the Committee of Correspondence, a secret society, whose agents far outstripped the press of those days in circulating political intelligence among the Whig party.

"Miss Delamere," he said, courteously bowing as she came forward, "I trust the time and business will excuse my want of ceremony, even to a lady. One who knows you well and esteems you above all other ladies, has told me of your faithfulness, sense and courage, as well as your good inclinations to your country's cause. Will you do that cause a signal service?"

"Alas, sir," said Constance, "a woman can serve her country only by her prayers."

"Only! Miss Delamere. Can any greater service be done to cause or country than that of seeking for it the Divine assistance, without which man is nothing? Yet, besides, remember that Deborah the prophetess, and many another woman of whom both history and holy writ keep record, has done for her land and people that which man could not do at the time, and you may follow their example."

"With the help of Providence, I will do so to the best of my ability. What is the thing to be done?" said Constance, for his words had warmed up the patriot blood that was in her.

"It is," said Warren, "to take charge of this letter," and he placed in her hand an ordinary-looking but well-sealed epistle, with the words "From Brother Jonathan," clearly written where the address should have been. "Keep it safe from every eye, and give it to the first person who speaks of Brother Jonathan to you or your friends after you leave Boston; but recollect, in doing so, to find an opportunity or excuse that may ward off observation; and be sure your country will thank you for it yet. Providence be your help and guard. I hear a coming step; farewell." He turned quickly away, and was out of sight before one of Jacob Stoughton's old warehousemen came down the alley.

As Constance re-entered the house, she heard her father's voice requesting a word in private with friend Jacob. The Quaker and he were closeted in the back parlor for a quarter of an hour or so, then Delamere slipped away, and Jacob came out looking rather concerned.

"It behoves us," he said to his family, "not yet to put on our traveling raiment. Friend Delamere has brought me word that the man Gage has closed his barriers, and set a watch, not suffering man, woman or child to pass out of the town. He has promised our friend, nevertheless, that we shall be free to go, but not till two or three hours hence, which will certainly bring the night upon us before we have made much way; yet we shall set forth, trusting in Him to whom the midnight is as the noonday."

It was weary waiting in the empty house, but their minds were occupied with the singular proceedings by which they were detained. What could have been the general's motive for shutting up the town? The men of the family went out in search of news on the subject, but they could get none. Everybody seemed equally taken by surprise, and none could guess the cause of such extraordinary precautions. Almost three hours passed away, and Delamere came at last to say that they might set forward.

The Quaker family lost no time; but when all were

ready to start, Jacob gathered them round him in the old family room, now bare and empty, and there, standing in the ancient fashion of his people, he prayed for those that went forth and for those that remained—that the same all-seeing Eye might watch over them, and the same Providence be their guide. Then Delamere took leave of his friends and his daughter. How hard it seemed for the squire to part with her—as if the shadow of all that was to happen before they met again darkened over his mind for the moment.

Constance kept a good heart, though shadows rarely fall upon the young, and she had Warren's letter to conceal and deliver. The risk and the secret blunted the sorrow; and Delamere would not cast a damp on her spirits, so he tried to look cheerful, mounted his horse, and rode with them over Boston Neck, and past the outermost of General Gage's sentinels, planted on the main road, with orders to turn back every individual who by any chance got out of the town, except themselves.

CHAPTER XVI.—THE FIRST BLOODSHED.

A considerable cavalcade they were, that excepted company, and one that would be thought a curious sight if setting forth from the Boston of our day. Caleb Sewell led the van. He was to do guide's duty, having done the commercial traveling of the firm for some years, and being, therefore, best acquainted with the country through which they had to pass. Susanna was seated on a comfortable pillion behind him; she had never been strong enough to learn horse-riding, and Caleb insisted that nobody could take care of her so well as himself. Mrs. Stoughton had been brought up in the country, and was a good horsewoman; she rode her own bay, and kept beside the pair. Jacob had his old acquaintance, Hannah Armstrong, mounted behind him. Constance and Philip rode side by side, as usual. Then came a number of discreet men in Jacob's employment, with sedate servant maids behind them, and a long train of pack-horses and men who had charge of them closed the procession.

They had proceeded about a mile after Delamere left them, when the whole party were called to a halt by a sentinel pacing up and down in front of a temporary guard-house on the roadside.

"Friend," said Jacob, "we have been permitted to go on our journey by the man Gage, who commands in Boston."

"That is no business of mine; you must speak to the lieutenant here," said the sentinel; and in his usual frank and soldier-like fashion, out stepped Lieutenant Gray.

He was unacquainted with the Stoughtons, but of course recognized Constance at once; made many kind inquiries, and complimented her on her father's return to the king's service.

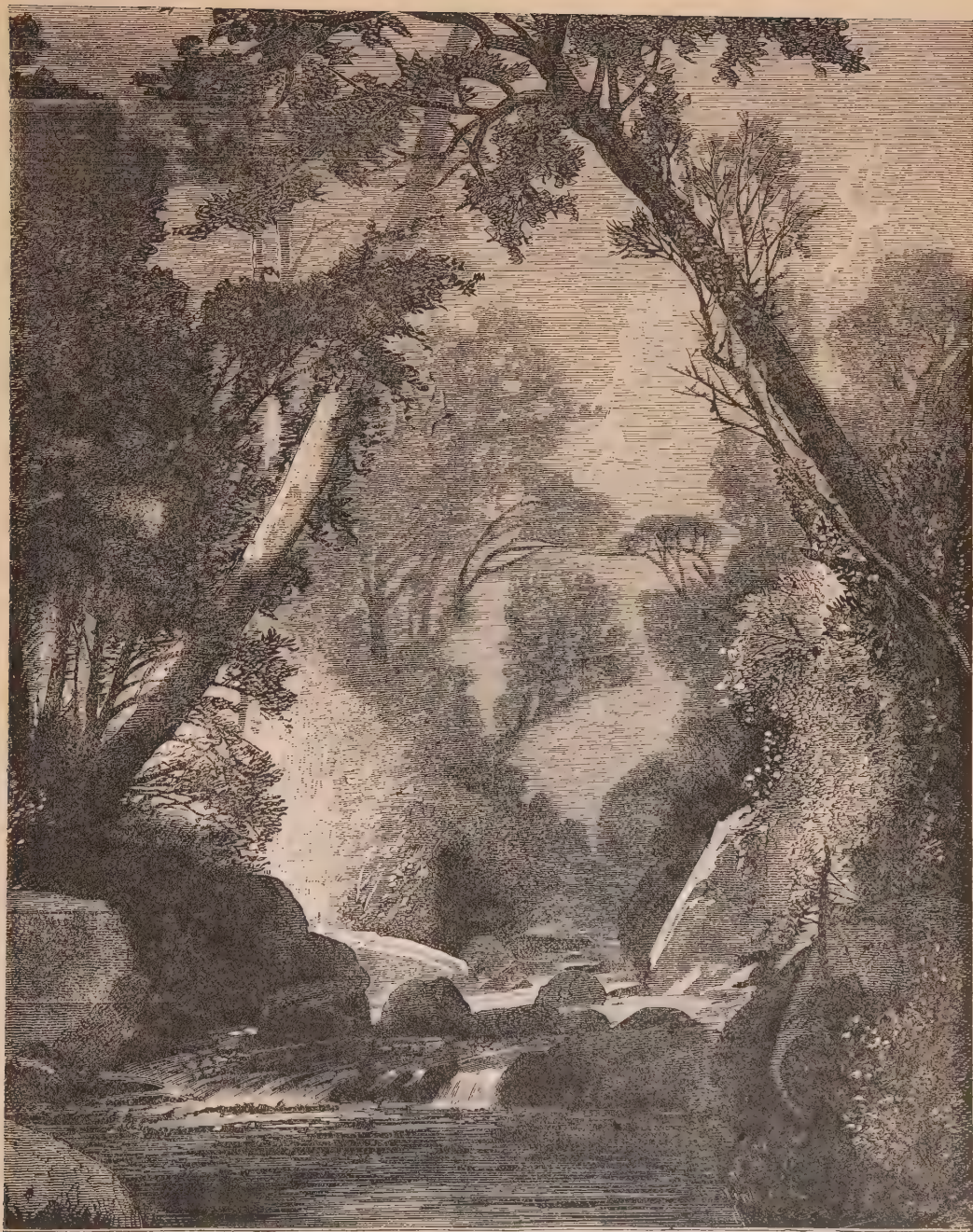
"I have not seen the major," he said, "having come here only this morning from my leave of absence in New York, and I can't understand this manoeuvre of General Gage; but my orders are imperative to let no traveler from Boston pass without a written permission from himself."

"That is hard upon us, friend," said Jacob, "for the barriers of the Neck are now closed, and I doubt if they will admit us to the town."

"I doubt it, too, said the lieutenant; and he added in a lower tone, "that old fellow is always bungling; but I'll tell you what I can do. If you will alight and bring the ladies into my room—it is a chill night for them to be stopping here—I will send one of the soldiers with a note to tell Gage all about it, and bring back his written permission if it can be got."

"I thank thee with all my heart, friend," said Jacob; and Constance was supplementing his gratitude, when her attention, as well as that of the whole party, was caught by an unexpected visitant.

On the opposite side of the road, and a little in advance of the guard-house, there stood a timber cottage, poor, but picturesque-looking in the deepening twilight, with the blaze of a bright wood fire flashing from its half-open door. Out of it, as they parleyed there, came a tall stooping woman, with her head so enveloped in flannel and red cotton handkerchiefs that it looked twice the ordinary size; a stout crutch under her one arm to make up for a remarkably lame leg, while with the other she held, bag-fashion, a check apron full of large doughnuts.



THE FLOWING RIVER.

"You're from Boston, I guess, you folks," she said, "can any of you tell me what's become on my brother Jonathan?"

"Where does thy brother Jonathan live, friend?" inquired the cautious Quaker.

"Well, I expect it's in Pilgrim street." She spoke with a nasal twang that was even matchless in New England. "You must know him; he's just like myself, a bit troubled with the rheumatics, but there aint such a boy in old Tremont; them Britishers is wantin' to make him a king's officer."

"There's a compliment to the service," said Lieutenant Gray, laughing heartily; the soldiers followed their officer's example, for they had all come out to see the travelers; the Quaker family forgot their accustomed gravity, but the woman seemed nowise abashed by their mirth.

"Take a doughnut," she said, presenting her full apron to one after another; but none of the party, except the lieutenant, availed themselves of the offer till she came to Constance, with an exhortation to pick the biggest, which the squire's daughter seemed to obey; but nobody guessed with what a quaking heart she let the concealed letter slip out of her sleeve into the woman's apron, and covered it with the doughnuts.

"You haven't got no news about my brother, it seems," said the dame, but a glance from under her wrappings told Constance that all was right; and as she hobbled back to the cottage it would have been difficult to persuade one of the on-lookers that the flannels, the crutch, and the female garments disguised a smart lad in the service of Samuel Adams, and one of the most expeditious runners in the province. They did not see him a minute after sally from the back door, in the dress of a young countryman, leap the garden fence, and scour across the fields with a speed like that of a deer.

The youth's father belonged to the sect of the Old Light Burghers, and had given him the edifying Christian name of Dust-thou-art; but his contemporaries abbreviated it to Dust, by which uninspiring title his fame long survived himself in that locality. The cottage in such near neighborhood to the guard-house was the dwelling of his particular friend, a flax-dresser and a militiaman. It was also the first news station from Boston. There Dust waited for intelligence, in the character of the flax-dresser's mother-in-law, and came out with the same inquiry regarding his brother Jonathan to all travelers when anything important was expected. It is said that the name thus agreed upon between the Committee Men and their most active agent, to indicate tidings of more than common import, became on that account, first, the sobriquet of the Bostonians, and finally, that of the American people, though some assign to it a different origin, for tradition grows hazy and uncertain in the lapse of a hundred years.

To return to the detained travelers. They were happy to accept the lieutenant's kind offer and await at the guard-house the return of his messenger to General Gage. The old officer gallantly conducted the ladies to the best seats at his room fire, found places for the sedate maids, as well as for Jacob and Caleb, who remained as guardians of the fair in his quarters, while the rest of the men allowed their horses to nibble the fresh grass which spring had brought up on the roadside, and held friendly converse with the soldiers by their guard-room fire, for, being Quakers, they lived at peace with all men—including "Britishers." The lieutenant despatched his note by a soldier who generally kept sober, and promised to make no delay. Then he sat down among his unexpected guests, and beguiled the time by conversing with them about their intended journey.

They had time enough, for hours elapsed before the messenger returned. General Gage had been at supper with a party of officers, and could scarcely be persuaded to attend to the business at all; but at length the soldier came back with his written permission for the travelers to proceed. They remounted their horses, took a friendly leave of the lieutenant, and set forward once more, in hopes to reach the village of Lexington before the break of day, and rest there at a well-known inn called Buckman's tavern.

It was long after dark by this time, a fine star-lit night overhurling the land; but as the party rode on, its silence was broken by sounds of strange import. They heard drums beaten in every direction; the bells of village churches pealed forth alarms; signal fires flamed up on

every height, till the whole horizon seemed in a blaze. They could hear the trampling of horses' hoofs in neighboring byways, and see the figures of men hurrying across the fields. "The country is alarmed and rising. What can it mean?" said Caleb Sewell.

"I know not," said Jacob; but let us push on to Lexington. There, perhaps we shall hear what has happened, for certainly there are some strange doings in the land this night. The Lord prevent bloodshed."

They did push on as quickly as the darkness and the rough road would allow. The sounds of alarm and the signal fires seemed to spread all over the country. The men whom they chanced to see were either in too great haste or at too great a distance to give them any intelligence; but when they reached Lexington in the gray light of the early morning, they found its inhabitants all astir, and the village green in front of the old meeting-house occupied by a body of armed men.

"What is the cause of this gathering, and the sounds of tumult which we hear on all sides, friend?" said Caleb, as he rode up to one who was piling fagots on a watch-fire hard by,

Constance knew that man's face as the blaze shot up. He was the determined-looking young man who had run Hiram Hardhead out of the door at the Elms on the night of Captain Devereux's unceremonious removal.

"The cause is ole Gage yonder in Boston; he got wind somehow of the store of arms and ammunition our people had laid up in Concord to defend their lives and liberties with; and last night, after shuttin' up the town till no cretur could get out or in, he sent a force of regulars across the Cambridge marshes, under cover o' darkness, to destroy the store and take two honest men, Samuel Adams and John Hancock, that he thought to find in their beds at the minister's house here. Howsomever, Providence subverses the schemes o' the wicked. Somebody—we don't know who—got out o' the town with a letter from Joseph Warren. So the runners have been wakin' up the country all night. If the Britishers do get the length o' Concord, they won't get much to play their spite on; and if Colonel Sydney Archdale comes up in time with his militia, they'll find things hotter than they expected in this township."

"I pray thee, friend," said Caleb, "thou and they that are with thee, consider to what issue this affair may come under the conduct of that headstrong youth."

"Ride on, my drab darlin'!" cried the young man—his name was Thaddeus Magrory, and he was known to be of Irish origin. "Ride on and get the women out o' danger, for the Britishers is coming up at your tail, an' I guess you'll like their room better than their company."

"Come, Caleb, persuasion is of no avail here; let us take the Bedford road, though it is somewhat out of our course; Concord is no place for peaceable people to venture on now," said Jacob.

Accordingly they took the Bedford road, which opened on the right hand side of the green, while that to Concord lay on the left. It led over hill and dale, through a pleasant district of farm and pasture land, skirted by remnants of the ancient woods. But the Quaker company had made little way when on the ridge of its first rising ground they paused with one consent, and turned to look and listen. The sun was mounting above the eastern heights, the birds were singing his welcome in the woods, and the breath of spring flowers went up from the meadowlands like incense to the brightness of his rising; but on the earth below there was a sound like the steady tramp of marching men, and arms and helmets flashed in the kindling day. It was the secret expedition entering the village, its advance led by Major Pitcairn with his marines. The travelers were too far off to hear the high-handed old officer summon the militia-men, by the style and title of rebels and villains, to lay down their arms, but they heard the sharp report of his pistol which followed, and then a volley of musketry. They saw the regulars rush on and the provincials give way, far outnumbered for the time. The country around them rang with a long, loud British cheer, followed by a din of dropping shots and shouting voices, and the simplest there knew that the long threatened war of brothers had begun.

"Oh, Lord!" said Jacob, as he bowed his head over his clasped hands, "have mercy on this unhappy land, and stay the effusion of blood!"

But Caleb looked towards the scene of action, now hidden by rolling smoke wreaths. The impulse of the

hour had raised the methodical young merchant above the level of his daily life; for there was a higher spirit in him, one that could have done the patriot's, or, if need were, the martyr's part, for faith or freedom's sake, as with uplifted eyes and hands he said, "Oh, Lord, since thou hast permitted the sword to be drawn in this land, stand by the cause which thou knowest to be righteous, and let not tyranny and kingcraft prevail upon the earth;" and the company with one voice responded, "Amen."

The well-head of a great river gives little token of the mighty flow with which it will meet the ocean, and so it is with the springs of the world's greatest changes. The military men who were in that action spoke of it as a mere skirmish; such in their parlance it was; but which of them ever guessed or dreamed of its mighty issues? The history of a republic more free and powerful than that of ancient Rome; the thunders that shook down thrones in the French Revolution, and woke the bondsmen of Europe from their slumbers in the debris of the feudal times; hopes that yet speak to the toiling thousands of better things than were ever known to them or their fathers in the old world or the new—all had their birth-time in that sweet spring morning when the first shot in the War of American Independence was fired, and the first blood shed, on the village green at Lexington.

CHAPTER XVII.—THE LOST WAY.

"Onward, dear friends!" cried Jacob, as he saw the provincials retreating towards the Bedford road; "onward, or the flying and the pursuers will be both upon us!"

On they rode, as quickly as good horses could bear them, but there was little danger to be apprehended from flight or pursuit. The militia retired but a short distance, the regulars turned and marched on to Concord; yet here the real difficulties of the Quaker company began.

Through every lane and bye-way, along the public road and across the fields, men on foot and on horseback came pouring to the scene of action with a haste that stayed for no hindrance and brooked no delay. The Bedford road was rough and narrow in those days; but with many a stoppage and many a turning aside the travelers pushed on, reached the little town, and found rest at its single inn. All sorts of rumors followed them there; some said that General Gage had sent out large reinforcements to his expedition, and the regulars were wasting the country with fire and sword; others said there was sharp fighting at Concord and Lexington; but late in the evening it was ascertained that the expedition, reinforcements and all, had been driven back to Boston, and that the provincials were assembling to besiege the town and prevent Gage and the four thousand men under his command from taking vengeance on the surrounding country, as it was believed they would.

All that night the hoofs of horses and the tramp of hurrying feet were heard throughout the land. Men to whom the news was brought, in the midst of their farm-work on the hills of New Hampshire or the valleys of Connecticut, unyoked their teams from plough and wagon and rode post haste to lend a hand to the good cause under the walls of Boston. The next day dawned through heavy and threatening clouds. April weather can change as quickly in the new as in the old England, but on the travelers went, being anxious to get out of the disturbed districts.

They had gone out of their course by taking the Bedford road, and to recover it were obliged to traverse wild and broken bye-ways, where their progress met with more serious interruptions than in the preceding day. Now it was a troop of Minute Men from some of the western towns that dashed through and parted the company; then it was a corps of mounted militia in full gallop, from whom they had to scatter away and take refuge on either side. To add to their perils, a blinding storm of hail burst on them when climbing a steep and wooded hill, and in the midst of it a body of Green Mountain Boys, on half-wild horses, with Hiram Hardhead in their van, mounted on a steed as lean and crazy as himself, and prophesying with all his might, came down like a whirlwind. There was no chance for the travelers but to fly out of their way as best they could: probably none of them ever knew exactly how they accomplished it, for these things are instinctively done.

But when the rush and the storm were past sufficiently for them to see and think, a part of the company, consisting of Jacob, with Hannah Armstrong behind him, Constance, and Philip, found themselves together at the opening of a narrow glade at some distance from the path they had left.

The path was quickly regained, but they looked round in vain for the rest of the company. "No doubt they have gone forward, expecting us to follow, and are hidden from our sight by yonder tall trees;" and Jacob pointed to a thick clump that almost barred the way; "let us make haste to overtake them. I would not willingly be parted from friend Caleb, for he knows the country much better than I do."

They did make haste, and passed the clump of trees, but could see nothing of their friends. Another fierce hailstorm obliged them to take refuge in the nearest shade, and when it was over they passed on again, every one of the four believing that path to be the very same which Caleb had chosen when the rush of armed men made it expedient to quit the public road. Their progress was impeded by nothing of the kind now; there was no sound of voice or step, no human figure to be seen on the wild-hill side, which they continued to climb. The hailstorms had given place to heavy and constant rain; the shades of evening were falling fast when they reached the end of the bye-path; but instead of the public road to which Caleb said it would lead them, there opened before them two ways, more rough and wild than that they had traversed, the one on the right hand leading up to a still higher ground, and the other on the left descending to a deep valley, overgrown with shrubs and brushwood.

"I fear we have lost our way; the Lord direct us!" said Jacob; but as he spoke they heard a sound like a din of mingled voices. There was a company of some kind coming down the right-hand path; but in a minute or two Constance and Philip, who were a little in advance, discovered that the said company consisted of their old acquaintance, Vanderslock, the Dutch lumberman, mounted on his shaggy horse, with his frau behind him, clasping her loving lord round the waist with both arms, and scolding in sound Dutch at the top of her shrill voice; while a silent, unconcerned-looking man, who might have been a lumberer too, rode side by side with them on an equally shaggy creature, which also carried a wicker-basket, with a couple of axes tied to its handles. The Dutch lady ceased as she caught sight of the party; and Constance lost no time in saluting her old friend of the Holyoke Woods, and inquiring if he could tell them the way to Harmony, a Quaker village, where Jacob intended to rest for the night, and expect to meet the wagons.

"Oh, Miss Telamere," cried the Dutchman, "you are all misconducted; you are all stray sheeps; Harmony is laid miles"—here he made a gesture demonstrative of distance, but in doing so, somehow displaced the straw-pad which served his fair partner for a pillow. Down she went, with a shriek that made the woodlands ring; and down went he, for the lady never lost her hold on his waist, and, both being of short and solid build, rolled a considerable way down the turfy slope, while the docile, intelligent horse stood still on the spot where they left it till the wedded pair scrambled up again, nothing the worse but for mud, and commenced a good matrimonial squabble in their native tongue.

By this time Jacob had addressed a similar inquiry to the unconcerned-looking man, who rode on with a composed manner worthy of his appearance, and answered in the same fashion, "Well, I guess you're many a mile out of the right track for Harmony."

"So much the worse for us, friend; and canst thou direct us to any place where we could find shelter for the night; the horses are spent, and the women are both wet and weary," said Jacob.

"I expect there's no place of the kind nearer my own location," and the lumberer pointed down the wild valley. "If you all come along, I promise you shelter and share of the victuals I have got."

"I thankfully accept the offer, friend, and will pay whatever thou mayst justly ask," said Jacob.

"No, no," cried the lumberer; "I wants no thanks, and I'll have no payment. I'm a woodsman, and never take nothin' from travelers;" and he led the way down the steep path on the left hand, followed by the whole party, with the remounted Vanderslocks carrying on their contest in the rear.

"Dost thou live here, friend?" inquired the Quaker, as they made their way through the thick underwood.

"I guess I do, when I'm at home. Old Canoe left me his block-house, which you'll see this minute. I don't know what his real name was, but he built the house himself, to keep the valley and the trout stream he had bought from the Indians clear of squatters, and lived in it fifty years or more. He was a good friend to me, I can tell you, when I sloped away from Amhurst's army, having got enough of the soldiering business; and a good house he left me; but one gets tired at times o' livin' by himself among the trees and the wild creature, so sometimes I lumbers and sometimes I peddles. They know me a good ways round about. My name's Green Crossland, but they mostly calls me Greenland—so may you, if you like, I never takes it amiss. I went up last fall to the Holyoke Hills to help Vanderslock there in the lumberin' line. They're honest folks, him and his frau, though she does scold a bit. It's my opinion every woman follows that trade. I would have stopped up there, and so would Vanderslock, but there's such a mighty rising of militia by a young crackskull—Archdale's his name, I think—and people that won't sarve gets called enemies to their country—that we sloped, to be at peace here for a bit. Aint that a nice location?" continued Greenland, as he drew up in front of a habitation placed in the narrowest part of the valley, which was there a mere pass, and just leaving room for a beautiful stream on the one side and a grassy path on the other. It was a regular block-house of the old colonial times, square and low. The walls were logs and the roof was of shingles; both were moss-grown, but weather-tight and substantial, and round the house, at a sufficient distance to enclose ground enough for a good garden, ran a strong fence made of the trunks of trees firmly wedged together, with one narrow but massive gate, which its owner said would keep out bears or Indians till the man got his rifle loaded.

The gate was securely locked, but Greenland had the key in his pocket, and opened it before his guests. The ground within was covered with young corn, a wild crop, he said, that grew from the droppings of last fall. Water from the stream was ingeniously introduced by a wooden pipe passing through the fence, but not to be seen on the outside, for the block-house had been expected to stand sieges in its time. Thus there was some provender for the horses. Jacob, Philip, and the Vanderslocks exerted themselves to get supplies for the tired and hungry creatures, and put them up as best they could in the only outbuilding that existed there—a shed behind the house.

"I takes them indoors when there's few on them in the winter time; but that aint the case now, and I never does the like before ladies; not that they came often to Block-house Hollow—that's the name of this place; you're the first I've seen in it for five years past last Candlemas," said Greenland, as he conducted Constance and Hannah into his mansion, of which the woodsman was not a little proud. It consisted of one large room with a well-made earthen floor, a hearth paved with tiles, a wide chimney, and two very small windows. There was a loft above, accessible by a rough step-ladder, a very good place, the master said, to keep bits o' stores in, and fire out of on the Indians that might want to burn the house; but the high place of his pride was a small room opening from the large one, which Greenland called his parlor. He showed them the treasures laid up there; they consisted of a chest of drawers with an old family Bible on top: "It was the only thing saved," he said, "when the French Iroquois burned our village—New Canaan, they called it, on the borders of Maine; my father and mother's wedding-day and our seven birthdays is entered in it. There was not a livin' soul of the family left but myself, for I happened to be with Amhurst's army at the time." Besides the drawers and the Bible, there was a rocking-chair that had been occupied by his grandmother. The one small window was draped with a French officer's cloak, all garnished with golden lace, which Greenland had obtained somehow before he "sloped" out of military life. A pair of silver-mounted pistols similarly come by, and a china teapot, ornamented a small mahogany table in one corner; and in the other, as his crowning triumph, he showed them a real bedstead made of oak by the hands of old Canoe. "There," said he; "you may sleep like queens; look, 'tis a good straw mattress, a nice bolster of good

feathers, mind, and two red blankets; I never slept in it myself, bein' better accustomed to dry grass beside the kitchen fire; but just see this," and he took from one of the drawers, and unfolded for their admiration, a patchwork quilt of many-colored stuffs, cut in various shapes and artistically sewn together. "It took five aunts of mine to make that quilt; they were all single when they began it, but the last of them got married before it was finished; there was no old maids in the country then, you see. Now, ladies, that's all the fine things that I have to show you; I had a Sunday suit of store clothes in them drawers once, but Tubal Cain Jenkins, down in Deluge Town, borrowed them to get married in, and next mornin', before he was up, his brother Noah got them on, started off to see his friends in New York, and hasn't been heard of since. Come along, till I see about gettin' something for the supper."

Greenland's kitchen, or family room, was not overfurnished. It contained a deal table, a settee hewn out of the trunk of an oak, some square logs which might be sat upon or burned as occasion required, a pile of dry grass in one of the chimney-corners, and a heap of firewood in the other. The household utensils were equally primitive; an iron pot and a rude spit, an old gridiron, and two rusty knives, a few wooden plates and a dish, a pewter tankard and two drinking horns, all arranged on one shelf, were the entire supply, and Greenland said "few woodsmen had such a lot o' things to set before folks." He went up to his store in the loft, and brought down a bag of hard biscuits, a quantity of venison and trout cured by the smoke of green wood, and warranted to keep for years, a large wooden bottle of cider, and a dish of wild honeycombs in fine preservation, at the same time informing them that he had corn to boil and flour to bake up there. Hannah found a birch broom behind the door, and with it made the floor and hearth clean, then kindled a fire, and spread the table, Constance assisting, while the master of the house went out to help the men. And when at last their ostler work was done, and they all sat round the uncovered board, where Hannah said the grace and distributed the fare exactly as, she used to do in the parlor at the Elms, there was not a more thankful or cheerful company in the province that evening.

"Ah," said Greenland, laying down the biscuit on which he had been making mighty way, and casting an admiring glance at the Quakeress, "it's true what my father used to say, 'No man has got a home except there's a woman in it.' Here we are all set and sarved like princes. I never saw such a fire as that on the block-house hearth before. What a poor confuscated lot we would have been, if you and the young lady had not come here, mistress."

"Thou art right, friend," said Jacob; "the Lord himself saw that it was not good for man to be alone, even in Eden; and for mine own part, I have never seen a bachelor whose life was to be admired either at home or abroad."

The prudent Quakeress said nothing, but Constance, having some skill in such matters, took note that Greenland ever after paid her particular attentions, and took frequent occasion to let her understand how well he could provide for a wife.

They talked over the strange news of the day—what the travelers had seen at Lexington and heard at Bedford. How little the events which so mightily moved the land, and called forth its men, young and old to arms, told on the quiet spirits seated by that block-house fire, differing in experience, education, and everything, except the love of peace and the horror of war.

"Friend Crossland," said Jacob, at last, "my company and I have had a long day's travel, and would fain retire to rest."

"Well," said Greenland, "there's a nice bed for the ladies in my parlor, plenty of dry grass for us men folks to sleep on here beside the fire, and my friends, the Vanderslocks, will have a good shake-down behind the wood, yonder; it's a real warm corner."

"Well arranged, friend Crossland; if thou has no objection, the impression is on my mind to pray with thee and thy friends before we all go to sleep, which is, indeed, our emblem of going from this life; or wilt thou pray with us thyself?" said Jacob.

"To tell you the truth, Mr. Quaker, I'm a poor hand in the religion line. My father was a Cameronian, and kept us well posted up in the Catechism and the Confes-

sion, but between soldferin' and slopin', pedlin', and lumberin', they have clean slipped out o' my mind; only I does my best endeavor to fear the Lord an' keep a grip o' the Commandments. Give us a bit of prayer yourself; there'll be none of us the worse for it," said Greenland.

Thus invited, Jacob officiated as the woodman's chaplain. Afterwards Greenland went out to see that all was safe and bar his gate. "I never locks it when I'm at home; locks may go wrong with a man, but bars can't," he said; and on his return he brought his guests the gratifying intelligence that the rain was over, and the clear sky promised fine weather for the coming day. In a short time the company were disposed of according to their host's arrangement, and sleep soon fell upon the tired travelers. The bed assigned to Constance and Hannah in Greenland's private parlor was singularly comfortable and well kept for a woodsman's cabin. The one window of the room was close upon it; and both dropped asleep, lulled by the murmur of the stream that flowed past that side of the block-house. It was a long, sound slumber, earned by a day of travel in the wilds. But they were roused from it when the day was creeping in by a sound which Constance had never heard before and never afterwards forgot—a prolonged, shrill, unearthly yell—loud, as if uttered by a legion of evil spirits; and Hannah, as she sprang out of bed, exclaimed, "May the Lord have mercy upon us; it is the Indian war-whoop!"

CHAPTEE XVIII.—MAIN-ROUGE AND HIS FOLLOWERS.

From tales related by her father and old neighbors at the Elms, Constance knew what a signal of death and destruction the Indian war-whoop was. She sprang up also, and the two peeped out of the window, which was so constructed in the thick log wall that those within could see without being seen. A glorious morning had broken on the wooded hills and the wild valley, but its light showed them that the enclosure around the house was occupied by Indians, arrayed somewhat like the Mohawks, and fully armed with rifle and tomahawk. Greenland's gate stood wide open, some active members of the tribe having climbed over and withdrawn the bars, thus admitting the rest, while all within the block-house were asleep. A band of stern old warriors had stationed themselves round the building, with their rifles pointed at its windows. I call them "rifles," as the familiar word for fire-arms now-a-days, but in truth they were ruder and "smoothbore" weapons. Beyond them the young men of the tribe flourished their tomahawks with gestures of savage fury; and on the hill-side, just above the stream, another group were busy kindling a fire.

Constance and Hannah flung on their clothes, and hurried out to give the alarm; but the men were all astride—indeed, no living man could sleep in such a din, for whoop after whoop rose from without, followed by thundering knocks with the butt-ends of muskets at the door.

"It's strong," said Greenland, "and will stand a good deal o' cavin'. What brings the varmints to my place, I wonder? I never had a quarrel with them, and their nearest settlement is miles away on the borders of the Mohawk country. Howsomever there's mischief in their heads when they open their throats that way; but I'm thankful there's two rifles here, my own and Vanderstock's. I wish the stock of powder and ball was bigger, but it ain't, so we must lose nothing. The loopholes in the loft will give us the best aim. I'm a pretty good marksman myself, so I'll take the front one. Vanderstock's a good shot—he'll take the back, I know; and Mr. Quaker, you and the boy could blaze away with the pistols from the windows, and frighten the savages, if you did no more."

"I have no pistols, friend," said Jacob. "I hold it contrary to a Christian's duty to carry or use any weapons of the kind, for if his Master sees good, he can deliver him from all danger, and if not, the Lord's will be done. But I will tell thee what I will do for our common defence, which is, indeed, the safest way, seeing thy munitions of war are but scanty; I will parley from this window with the chief of the Indians, for I know him to be Main-rouge a raging heathen in his wrath, but otherwise just and reasonable; since thou hast no quarrel, it may be some mistake that has brought them here."

"Well, ole man, it's no doubt a Christian way to spend the fag end o' your time, and there's not much of a better chance for us; but while you're parleyin' I'll just get ready my rifle. Do you the same, Vanderstock; and every one o' you, especially the ladies, keep well away to the corners, for fear o' them savages firin' straight in when he opens the window."

Undeterred by that danger, Jacob opened the shutter of a small unglazed aperture above the settle, out of which he had previously taken a cautious look, and said to the yelling savages in a quiet tone, "Friends, what is your business here?" Calm courage generally commands the respect of the red men. Their whoops ceased; their ferocious faces turned towards Jacob. Some of them pointed their rifles at him, others flourished their tomahawks, but the Quaker did not shrink; and a man of larger frame than most of the Indian race, but as gaunt and spare as they commonly are, advanced to parley with him. His buffalo robe, rich in its rude embroidery, his belt made of silver plates and scarlet leather, and the number of weapons, both European and Indian, stuck in it, the superior brilliancy of his war-paint, and the peculiar crown of feathers with which his head was decorated, all proclaimed him to be the chief of his tribe, the redoubtable Main-rouge.

One who looked on that Indian's face could well believe Lieutenant Gray's account of him; there was such a look of iron sternness about the brow and mouth, and such concentrated fire in the deep-set eyes. Thick as the war-paint was, it could not conceal the furrows which a hard life, or hard thoughts, rather than time, had made there; for the chief was still upright, active, and sinewy as any of his tribe."

"We want Major Danby's squaw," he said, after a considerable survey of Jacob.

"And what might be thy business with her, friend?" inquired the time-gaining Quaker.

"Our squaws are waiting for the woman."

The haughty, vindictive malice of the Indian's look, and the yell from his people that followed, for the moment appalled even Jacob.

"Major Danby's squaw is not here, and we know nothing about her," he said. "We are travelers from Boston, who have lost our way, and taken shelter in the block-house for the night."

"Do you keep a store of big lies ready to tell Indians?" said Main-rouge.

"I am one of Penn's people, friend." And Jacob made a large display of his drab coat. "Didst thou ever know any of them to tell the Indian lies?"

"No; but let me see the woman you have with you," said the unconvinced chief.

It was now plain for whom the party were mistaken by the vengeful red men; and by Jacob's advice, Constance, Hannah, and the frau at once stood up on the settle, where their faces could be most plainly seen through the little window. The Indians crowded to the spot, and gazed up at them, but a general head-shaking and look of disappointment announced that their eager pursuit was foiled, for fortunately neither Constance nor Hannah in the least resembled Major Danby's squaw.

The next moment hoarse voices spoke out among the Wampanoags. They were evidently suggesting that the woman wanted was hidden in the house, for every eye glared with savage indignation—every hand brandished hatchet or rifle, and another war-whoop burst from all the warriors except Main-rouge himself. He stood gazing on Constance with such fixed earnestness, that in spite of her resolution not to seem afraid, the girl trembled in every limb.

"Whose squaw are you?" he said at length.

"I am nobody's squaw; I am not married, chief," said poor Constance.

"Whose daughter are you, then?" and the Indian came close up to the window.

"I am the daughter of Squire Delamere, of the Elms," said Constance.

"The great house on the banks of the Connecticut, at the foot of the Hoosac hills?" he inquired.

"The same," she said; and was about to step down when the Indian made an urgent sign for her to stay.

"Listen;" and he spoke slowly. "Twenty winters ago, when I was with Montcalm and his people among the Great Lakes, and all the warriors of our tribe were with me, the Mohawks, who had taken up the hatchet for the English, fell upon our settlement. All the wo-

men and children who could get away fled to the borders of Massachusetts, the land that was once our own; and my wife and her five little ones wandered as far as the banks of the Connecticut. There your father found them shivering under a tree one day, when the snow was falling fast. He knew I loved the French and hated the English; but he took my wife and children home to his house, kept them at free living, and suffered none of his people to deal unkindly with them, till I and my warriors came back, and drove the Mohawks out of our settlement. Then he sent them safely to me, loaded with blankets and stuffs, bread and white man's meat, and guarded by his men, that no enemy might find them by the way; and then I swore that if ever he or his came to want or extremity, I would help and stand by them, though they had killed my father. Therefore fear nothing; you are Delamere's daughter—your face tells me so, and Delamere's daughter is mine."

He turned and spoke in their own language to the warriors, who had by this time silently gathered round him; for some of them understood English, though the greater part did not.

"My noble father," said Constance, while the tears sprang to her eyes, "from how many voices have I heard of your generous deeds!"

"Yes, my daughter," said the Quaker; "and the bread he cast on those wild waters so long ago seems returning this day to benefit not only his child, but, it may be, our whole company."

As Jacob spoke, a strong odor of burning wood began to fill the house; there was a crackling sound somewhere above, and a yell of triumph came from the hill-side. The youths who kindled the fire there had been amusing themselves unobserved and unchecked all the time of the parley by flinging blazing brands at the roof of the block-house. Many had fallen short, but the aim was at last successful. Greenland went up to the loft to see what was the matter, and rushed down with the intelligence that the roof was in flames, and the old place would burn like tinder. With that announcement he unbarred the door, and every one made the best of their way out, for the smoke was now suffocating. Greenland darted back for his rifle and family Bible—there was no time to save anything else. The burning roof fell in upon the loft, the loft fell into the rooms below, a shower of sparks and a column of flame went up to the morning sky, and the comfortable, substantial block-house, with all its owner's treasured chattels, was a burning mass that must soon be reduced to ashes. The sight of it woke up the destructive instincts of the Indian tribe, with the exception of Main-rouge and a few old warriors who stood apart, looking on the scene with haughty unconcern. The entire band danced round the blazing building with the most frightful yells and brandishing of weapons, which, however, they did not turn upon the whites, but allowed the men to get the horses and their traveling gear out of the shed, while Constance and Hannah, at a sign from the chief, retired for safety behind him and his company. The frau followed their example, but nobody—not even Greenland, who knew the surrounding wilds—made the slightest attempt to escape, for they knew it would be worse than useless. The Indian never loses an opportunity of carrying away captive or hostage for whom ransom may be exacted or claims enforced. The excited plebeians and the composed patricians had the same watchful eye upon them.

The wild dance went on for some time, getting more furiously triumphant at every crash of the burning walls, till the chief, thinking his followers had been sufficiently indulged in their taste for mischief, issued his marching orders, which were directly obeyed.

A couple of powerful Indians disarmed Vanderslock and Greenland of their rifles, but left the latter his Bible. "I knew it was the only thing the varmints wouldn't take from me, and may-be the best worth savin'," he said, in after moralizing. The tribe had a sort of respect for the book he carried so carefully, supposing it to be the "white man's medicine," or amulet, and by way of security, passed round it, under Greenland's arm, the strong bark rope, with which they bound his right and the Dutchman's left together, knowing that, attached to such a figure as Vanderslock, it was not possible for the active woodsman to run away. Constance, Philip, and the Quaker, with Hannah behind him, were allowed their horses. The frau got possession of her husband's shaggy steed, and rode triumph-

ant on his saddle with a stout basket of household goods before her; but they rode in single file, after the fashion of the red man's march. There was always an Indian or two close by every bridle, and thus the luckless company set forth from the Block-house Hollow across the wild and wooded hills to the Wampanoag settlement, on the borders of the Mohawk country.

At the same hour, Caleb Sewell and three of Jacob's men set out on their backward way to search and inquire for the missing four. The rest of the party, though, like them, driven aside by the onward rush of the Green Mountain Boys and the blinding hailstorm, had under Caleb's guidance regained the path, and proceeded for some distance before they missed their companions. When about to turn and seek for them, the report of a traveler whom they chanced to meet, and who had seen persons answering to their description far ahead, made them push on. They reached Harmony at the fall of night, but found that their friends had not arrived there, and the wagons had gone forward. The men in charge of them having heard the news of the insurrection, thought it best to get out of the disturbed province as soon as they could.

Caleb and his company stayed at the Quaker village for the night, the rest remained there all the next day, while he and his three assistants rode over the ground they had traversed as far as Bedford, inquiring in every direction for the lost travellers. No certain intelligence of them could be obtained, but from vague accounts which they had of some such people being seen on the public road and at village inns, the searchers concluded that their missing ones were still before them; and after another night's rest in Harmony, the company continued their journey, inquiring and advertising for the four at every stage, but inquiring and advertising in vain, for they had mistaken the wrong path for the right one, and in traveling, as in life, such mistakes are apt to have serious consequences.

CHAPTER XIX.—LIFE IN AN INDIAN VILLAGE.

In those days the province of New York had two strongly contrasted divisions. Its seaward side, inhabited by the descendants of Dutch, French, and English colonists, was the seat of cultivation, wealth, and commerce, rivalling those of the mother-country; but its inland and largest half was the territory of the Six Nations, those remnants of the aboriginal race who had sought refuge in that central land from the white man's advance on north and south, and maintained there the rude independence and primitive fashions of their fathers.

The summer tourist, in his wanderings among the highlands of the Upper Hudson, still meets with many a memorial of the long-banished people, besides the beautiful river that bears the Mohawk's name; but at the time of our story every tribe had its own settlement or village. That of the Wampanoags lay nearest to the Massachusetts frontier, and hither Main-rouge and his followers hastened with their prizes.

It was a fatiguing march for the whites and their poor horses, hurried through the rough and tangled ways of a forest land, on which it seemed that no axe had been lifted—for clearing or human habitation there was none; with no rest allowed but a short time at noon, on a grassy spot where a living spring gleamed and bubbled up at the root of a giant tree. There the Indians drank water and dozed on the grass, with some always wide-awake and keeping watch over the spoil. Long and very quick marches are the fashion with most barbarous races. When the sun began to decline, they were all afoot once more, and through the cool, clear night their silent march went on, for Indians rarely speak in transit; but the morning was well advanced before they came in sight of the settlement. It was an open valley, surrounded by low and grassy hills, with wood-crowned heights beyond them. The village stood in its centre, on the banks of a winding stream; the morning sun was shining on the pleasant hills, on the low roofs, and on the laughing waters; and as they descended the beaten path that led from the uplands to the valley, the whole scene looked so pastoral and peaceful, that it reminded Constance of the shepherd life and Arcadian vales of which old poets sung.

The fair fancy was quickly dispelled. Scarcely had they come within hearing distance, when a whoop, more shrill and discordant than that of the warriors round the

block-house, burst from the village, and out of it came rushing a band of hags, withered, wizened, and wicked-looking enough for witches about to begin some vengeful spell, and every one flourishing a birch-rod, that might have met the requirements of any of the old school teachers, by whom that instrument was believed to play an important part in the improvement of the youthful mind. These were the ladies said to be in waiting for Mrs. Major Danby; and Jacob's reflection on the bread which Delamere had cast on the wild waters was soon proved to be true. Indian indignation will vent itself on the first of the offender's race it can reach; and the interesting company yelled and flourished their birches at Constance and Hannah in a style which made evident that one white woman would serve their turn as well as another.

Before they could get sufficiently near to do any damage, the chief stopped their progress with an imperious gesture and some words of command, which his warriors seconded by each addressing his liege lady in a similar manner; whereon the gentle fair ones, looking considerably disappointed, but without a word, after the fashion of Indian women, retired to their domestic affairs, and Main-rouge and his followers entered the village. A curious sight it was for the party of whites, now relieved from apprehensions of immediate danger, to see the wigwams of which it was composed, low, brown and weather-stained, half tents, half houses, made partly of timber and partly of prepared skins, without chimneys or glazed windows, the smoke making its egress by a hole in the roof, and the light finding entrance by open slits in the wall. Yet, for the requirements of Indian life, they were not uncomfortable homes; there was no appearance of want or squalor about them. Robust red children played at every open door; women were busy about the fires within; savory odors of venison and wild fowl in progress of cooking pervaded the atmosphere; all round the village a broad belt of growing corn, with scarcely a fence or landmark to divide the fields, gave promise that bread would be plenty among them before the next fall; and beyond it, horses and cattle in considerable numbers grazed on the abundant herbage of the valley. The Wampanoags were well-to-do, according to their wants and ways; and looking on that prosperous though secluded settlement, one might have guessed how things went with tribes of the western world before the white man's foot, and all the ills which that ominous "plant" predicted, were known upon the soil.

"Welcome home, my daughter," said the chief, as he assisted Constance from her saddle at the door of his own wigwam, with courtesy scarcely to be expected from an old warrior of the red race. "Welcome home; and fear nothing, you or your friends, for neither man nor woman shall lift a hand against you;" and he gallantly handed her in, giving Jacob and Hannah a sign to follow, and by a similar motion committing the Vanderslocks and Greenland to the charge of some of his followers, doubtless known to be trusty and discreet. His dwelling was worthy of an Indian chief. The premises properly consisted of three wigwams, the principal being in the centre, and the inferior one on each side of it. They were for the accommodation of his retinue. Some of them were hired people, but the greater part were slaves—captives taken in war with other tribes—and many of them sent as presents to him by friendly chiefs; but their exact number his white prizes never knew.

The hired men did his hunting business, and brought home from the abundantly-stocked woods, venison, bison meat, and wild fowl enough to supply his ample household; the rest did all manner of work without and within doors, and being slaves, the men were expected to do as much as the women, with which exception all difference between the faring of free and bond man ended.

The central wigwam was the private residence of Main-rouge, and a princely mansion of the kind it was, consisting of a great hall, with a fireplace at the upper end, and several smaller apartments partitioned off on either side by curtains of skin, so thick and well-secured that they formed very good substitutes for our lath and plaster.

That hall was the place of state, of council, and of feasting; there the chief sat in Indian splendor, on a low log settle, covered with a bearskin, wearing his embroidered robe, his wampum belt, and his moccasins, covered with beads and shells, to receive visits of cere-

mony from the chiefs of other tribes or the agents of white authorities, to give judgment in cases of dispute or accusation among his people, and to hold high festival in celebration of some glorious victory or advantageous marriage.

He sat there now, not in such solemn state, but with his white guests, for the three were treated as such. His attendants spread a liberal table before them. It was simply a board supported by uprights and trestles, but heaped with the best of Indian fare; and having spread it, they retired to the farther end of the hall, where they squatted on the floor till the great people had finished, and then shared the remnants of the feast among themselves. The red man does nothing—at least in a friendly way—without time and ceremony. It was not till they had eaten the morning meal together, and he had made them a short speech, setting forth how welcome they were to his wigwam, that the chief inquired of Jacob if Hannah was his squaw, what relation he was to Squire Delamere and his daughter, where the party were going when they rested for the night at the block-house. This was the opportunity for which the prudent Quaker had waited. Trading with the Indians had given him some knowledge of their character and ways, and he at once replied to the chief's questions, with full particulars regarding himself and his companions. "Thou perceivest," he added, "that I am thus separated from my wife and daughter, my friends and servants, not to speak of my household goods, which were sent on before; that Delamere's daughter and the boy Philip, who is her page, and Delamere's housekeeper, this honest woman, whose name is Hannah Armstrong, were all placed under my charge by himself before he went on the war-path, because of the loving friendship that was between us, and that it behoves me to guide them safely to Philadelphia, and keep them in my house there supplied with all things necessary till he returns. Wherefore I beseech thee, for the sake of Delamere, and thy remembrance of his good deeds done to thy family, to agree with me on the terms of ransom for us all, and be sure that whatsoever thou askest in reason I will pay. Let some of thy people accompany us to the borders of Pennsylvania—for truly we know not this country—or let them go onward with us to the city and receive the ransom."

"I will take no ransom for Delamere's daughter or Delamere's friends; he took none for my wife and five children when I was on the war-path against his people; they shall dwell in my wigwams and share my venison till such times as I can send them with fitting guides and guards to Philadelphia; for the Six Nations are disturbed concerning what side they should take in the dispute between King George and the people of the land; other tribes are remembering their ancient battles and enmities, and the Mingoes have already taken up the hatchet."

They all thanked him, but he cut their acknowledgements short with the stately courtesy of an Indian chief, saying to Constance in particular: "You are young, and think only of the present; but I remember the past, and the six that shivered under the tree in the falling snow."

"Are they all with you yet, chief?" she ventured to say, for her curiosity on the point had been roused by seeing an old dame, as withered and as wizened as any of the ladies with the birch, superintending things in general about the wigwam.

"No," said Main-rouge; "they are all in the spirit country; the wife that loved me, the four sons that fought by my side, and the daughter that was the light of my days. I kindled the night fire for one after another, to light them on their journey to the happy hunting-ground; but I kindled none for her; she died far beyond the great waters; my daughter married a Frenchman, and went with him to his father's land. They made much of her there; she had all things rich and fine; but in their great towns and lofty houses she pined for the woods, and so departed early on that journey which all the living must take."

Main-rouge—his own name was Masotes, but he dropped it for the more distinguished title—was a remarkable man in his day.

Like the famous King Philip, whom he reckoned among his ancestors, he had received an English education, being sent to New York for that purpose, when very young, by his father. The old chief had been always friendly to the English, and a great admirer of their arts and learning, yet his son, to whom such oppor-

tunities of acquiring both were given, not only returned to Indian life and habits, but took the French side in the succeeding war, and proved faithful to the cause he had adopted even when it was ruined. The choice had been disastrous to himself and his people, yet no chief had greater authority over his tribe, or was held in higher respect by the Six Nations for wisdom, valor, and faithfulness to covenant or treaty, and doubtless he would have honorably kept his promise to the three, but for one of those temptations of family interest and affection which at times prove too strong for the red man as well as for the white.

He kept it well. In the mean time, had Constance been the only daughter of the redoubtable Red-hand, she could not have experienced more kindness and consideration. The chief himself, having some remembrance of the attentions to which white ladies were accustomed, would gallantly hand her to a seat by his side on the bearskin-covered settle, and divide with his own red hands her portion of the best with which his board was furnished. Jacob and Hannah were scarcely less distinguished in the wigwam. Philip, for being her page, was admitted to a place in the hall. Greenland and Vanderslock were unbound, and they, together with frau, being known to be strangers and lumberers, were made free of the inferior dwellings as humble but welcome guests. The little company thus felt themselves safe among the savage tribe, with whom their chief's word was law; and though much dissatisfaction had prevailed in the village because his expedition furnished no sacrifice for the Indian Nemesis, yet the whole population, finding there was nothing of the kind to be had, at once got reconciled to the strangers.

They were making themselves at home in the new society, where it was evident their sojourn might be for some time, when one morning a great bustle throughout the village, and shouts not unlike the war-whoop, announced some distinguished arrival. Constance looked out among the rest, and saw that it was a Mohawk chief, with an ample following of warriors in full array; but that chief was no other than Kashutan, the handsome Indian whom she had once mistaken for Sydney Archdale. The discovery was not cheering under present circumstances. Moreover, she perceived, at the same instant, that the young Mohawk had caught sight of herself, and recognised her, too, though he betrayed no sign of the like among the warriors. Yet, when the ceremonious greetings with which Main-rouge and his people welcomed their visitors were finished, and the most distinguished were thronging into the hall, the old chief conducted him to the retired corner where she had taken her seat, and said, "This is my nephew; his name is Kashutan; he is the son of Shingis, chief of the Puma-tribe of Mohawks, whose fame is known to the Six Nations and all the pale faces in this land."

Miss Delamere dropped a deep curtsy, and said she was happy to make the acquaintance of a gentleman so distinguished. The young Mohawk made the same graceful bow with which he had stepped out of her way in Harbor street, and said some words which his uncle interpreted to mean that the sight of her face was as pleasant to him as the sunshine after rain.

"These are his warriors," continued old Red-hand, introducing the formidable array that now filled the hall, and he made them a short speech, setting forth, as Constance afterwards learned, her father's rank and wealth and her own prospects of inheriting his large estate.

The Mohawks were reckoned, not only the handsomest and most ferocious, but also the most polite of the Six Nations, and in those respects all their tribes were said to be excelled by that of the Puma, or American tiger, the special patron of Kashutan and his people, for, as the knightly orders of the middle ages selected their patrons from among the canonized, the clans of red men found theirs among the wild dwellers of their native forests. Moreover, they were best acquainted with white manners and customs, having been the faithful allies of the English for almost a century, and constantly engaged in trade with their merchants or agents. The entire company did reverence to the squire's daughter. It might have been observed that the younger braves bowed much the lowest, and those who had English enough said, "Wish the missy a good day." Constance made the best acknowledgments she could think of, and all parties seemed satisfied that the correct thing had been done; but the peculiar etiquette of these gentry of

the wilderness was exemplified when the chief presented his less notable guests, including their familiar acquaintance, Jacob Stoughton. They went through the whole ceremonial of introduction with as much solemn formality as if one of them had never seen the Quaker before; but when it was finished Kashutan and several of his warriors shook hands with him in the most friendly manner; and some of them inquired, in tolerable English, after his fellow-merchants, with whom they had traded in Boston.

CHAPTER XX.—THE MOHAWK'S WOOING.

The Mohawks had come on one of those long visits of half-pleasure, half-business, which the braves of friendly tribes are apt to pay to each other in critical times. Councils were to be held on the subject of which side their united forces should take in the strife which threatened to divide the American continent. There was also a good deal of hunting and feasting to be done, the former necessarily preceding the latter, as so large an influx of guests required extra provisions, and all supplies were brought from the woods. Their young chief had also a private affair to transact in his uncle's territory. His meeting with Constance there was no doubt unexpected. While the braves of both tribes were preparing to set forth on a grand hunt, she saw him and the old chief in earnest consultation behind the wigwam, where there was both shade and space. Main-rouge appeared to be hesitating about something on which his nephew's heart was set, judging from the persuasive eagerness of the young man's address; but at length it seemed that the uncle was won over to his views, and the matter settled between them.

The braves were gone a-hunting for the greater part of the day, and when they returned towards evening well provided with game, they sat smoking in groups before every wigwam, while the squaws prepared the feast. When the feast had been spread and done justice to, and pipes and talk again occupied the warriors around the evening fires, Constance was sitting alone, in a sort of natural arbor formed by a drooping tree, in that same shady space where the uncle and nephew had held their conference. The chief's people had constructed a mossy seat for her there; it was a more pleasant place of retirement than her own small chamber in the warm season which had now set in, and some such place was requisite for a white lady in an Indian settlement where no drawing-room society could be expected. She sat there, in the soft and scented twilight of May, thinking of her old home at the Elms, of her father, and of Sydney Archdale, when something like the rustling of leaves made her look up, and close at her side she saw the young Mohawk with his belt full of knives, his hatchet in his hand, and his eyes earnestly bent on her. It was by a great effort of prudence that Constance kept her seat; she had been warned by both Hannah and the Quaker not to appear frightened at any extraordinary movements on the part of the Indians, due to their savage instincts. She therefore sat still, and tried to look as if nothing had happened; but it was difficult to do when the Mohawk stepped out before her and commenced at once a dance and a song. The dance was at first slow and monotonous, and the song low and plaintive, as if it told some sad and tender tale in the liquid words of his Indian tongue. But the one increased in rapidity and the other in volume, till the dance was a succession of bounds and the song a continuation of whoops; while at the same time Kashutan pulled knife after knife from his belt and flung them about in the most furious fashion with his left hand, and with his right flourished the hatchet on all sides, his teeth gnashing, and his eyes glaring like miniature furnaces; till poor Constance, believing that her hour was come, and too much terrified to attempt to escape—which, indeed, would have been useless—leant back on the seat and covered her face with her hands. All at once, however, the Mohawk's mood changed, he let his hatchet fall at her feet, moved backward and forward with a step that seemed to indicate pain or trouble, while his hand was laid alternately on his breast and brow, and his face took an expression so soft and sorrowful that Constance, after seeing its previous fury, could scarcely believe her eyes.

With that look his motion suddenly ceased, and he stood still before her for some minutes, as if expecting a response; then he seemed to conclude that his performance was not appreciated, and, looking disconcerted and

ashamed, Kashutan turned and walked away. Not knowing what to make out of it, Constance rose, and was walking away too, but in a different direction; she thought of asking Hannah's opinion on the subject, when steps approached, and the old chief and his nephew were both by her side.

"Is my daughter afraid of her Indian brother?" said Main-rouge, handing her back to the mossy seat, and taking his place beside her, while the young man stood modestly behind them. "Is the pale-faced woman, who can read books and write letters, less gifted with understanding than the daughter of the red man, whose only school was the hearth of the wigwam and the paths of the woods?"

"Father," said Constance—she had learned something of his own style by this time—"it is not possible for man or woman to understand the tongue and the customs to which they are strangers."

"You speak truly," said the old chief; "yet I thought such things made themselves known to the young of every race and language."

It presently appeared that by that song and dance his nephew was declaring his love for Delamere's daughter. It was an ancient custom of the Puma tribe—lovers had employed it for many generations to set forth their great and strong affection; but those who were false-hearted or but faintly moved did not use it, lest pining sickness or death should come to them before the nearest spring or fall. The first part reveals how the lover is subdued and enslaved by the maiden's beauty and excellency; the second declares the valiant deeds he will do for her sake against the enemies of her people; and the third proclaims that if his love is not returned, he will live without a squaw and die with sorrow.

Constance had never before heard of that remarkable custom; yet there are many such among the Indian tribes. Wanting in chivalry as the red man must ever appear in European eyes, and degraded as the condition of the red woman may seem, there is an underlying vein of noble sentiment in the Indian character, for both their history and traditions abound with instances of the most romantic love and the most devoted friendship.

"Consider, now, my daughter," continued old Red-hand, "that Kashutan is the son of a great chief, Shingis, the most famous warrior of all the tribes of the Mohawk. He sought my sister in her youth, and she fled with him from our settlement; it was no disgrace, but we were angry because he went on the war-path with the English, while we took up the hatchet for the French. These things are past, like the leaves that were then on the trees; my sister is the mother of Kashutan; Shingis has gone to the spirit country, and has left him a great inheritance of spoils taken in war, and goods purchased in peace. My nephew possesses herds of cattle and horses and companies of slaves; his corn-fields are large and fruitful as those that the white man plough; in his wigwam are stores of cloth and linen, rum and gunpowder; he speaks first after the old men at the council fire, because of the wisdom that is known to be in his youth; and when he takes up the hatchet, a thousand warriors will follow him on the war-path. Your own eyes tell you that Kashutan is a comely brave. Many an Indian maid smiles upon him when he sits at the feast, or plays in the sports of the young men; the daughters of renowned chiefs in all our settlements would be well pleased to dwell in his wigwam, but he seeks only the white man's daughter."

From the day of their meeting in Harbor Street, Constance had an inkling of the young chief's sentiments regarding herself, but she was not prepared for the suit so directly made by both nephew and uncle. Of course it was highly flattering to a young lady's pride to have the love dance of the Puma tribe—which ensured death or sickness to the faint or false-hearted wooer—performed before her by a gentleman with a following of a thousand warriors, and his uncle, the redoubted chief of the Wampanoags, to plead his cause in her native tongue; but in her present position it was highly dangerous too. She was no coquette by nature or education, and yet her woman's wit suggested, as the only safe course, a temporizing policy which would not drive the wild wooer to despair, for the brandishing of his hatchet was still in her memory. So, with as much self-possession as she could assume, Constance set forth what high respect she had for the son of the famous Shingis, how much she felt complimented by his choice of her as a squaw, and

how unworthy of that exalted position, and unfit to fulfill its duties, she was as a white woman.

"You know, father, the customs of my race are different from those of the red people," she said, "and your nephew must know the same. Hands like mine would be useless in his wigwam; I can neither cook venison, tan skins, nor hoe corn. Many an Indian maid, who can do all these things, whose ways and language are his own, would, I am sure, be proud to call such a handsome and distinguished chief her husband."

Here the young Mohawk's impatience getting the better of his modesty, made him demand of his uncle the meaning of her words, whereon Main-rouge invited him to come forward, interpreted what Constance had said, and translated Kashutan's reply. It was to the effect that he would never expect from her the usual accomplishments of Indian married ladies; that his mother would manage the affairs of wigwam and corn-field, and superintend the labors of his hired people and slaves; that his followers should wait upon Delamere's daughter, and she should have everything that white ladies were accustomed to; that himself should behave to her like a white squire, only that he believed some of them did not keep the promises they made to their squaws, but he would; and his uncle endorsed the declaration by assuring Constance that Kashutan always kept his word as became an Indian chief, and that he had learned how to behave to white ladies from a young squire who spoke the Mohawk tongue, and often visited the tribe in his father's days.

"I have talked with him," said the old chief; "he had more wisdom than the Great Spirit allows to most of the pale faces, and was handsome, too, for one of his race, having some resemblance to my nephew, for the squire was about his years. His name was Archdale; he knew your father and his house; his own kindred dwelt somewhere on the banks of the Connecticut. Have you ever heard of them, my daughter?"

Constance knew he was speaking of Sydney; she recollected that the latter had taken refuge among the Mohawks when the Government search after him was hot and the captain first came to the Elms. She recalled the bunch of wild-wood flowers he had once left on her window-sill; the guise in which she had seen him last, and his resemblance to Redhand's nephew. He was a colonel now, at the head of a militia regiment raised in her native place, and in a great measure consisting of the tenantry on her father's estate, as well as that of the plantation; and there by her side stood the man she had mistaken for him, the Indian chief whom he had instructed on the devoirs expected by white ladies, and who was bent with all the resolution of his red nature on taking his place in her good graces. Main-rouge had asked the question in all sincerity, and with no suspicion of the bond that had been between them; yet it was a minute or two before she could answer with sufficient composure: "I knew them well; they were neighbors to my father, and had as good an estate as his own."

Some Indian words passed between the old chief and his nephew. The latter seemed to make an eager inquiry, and the former turned to Constance. "Do you know if the young man is there still? Kashutan would fain hear of him, for indeed they were friends."

"I have not been in that part of the country for a long time; but when I was living in Boston with my friends who are here now, I was told that he was raising a regiment of militia for the defence of the province." No girl of her years could have spoken more judiciously, though it was somewhat at hazard. The answer appeared to satisfy the chiefs, old and young; but, urged by his nephew, Main-rouge returned to the main subject.

"Kashutan has laid open his mind to you in the sacred love-dance of his tribe, and also by my tongue," he said. "What answer does my daughter give to her red brother, that his hunting may not be uncertain and his dreams troubled?"

"I pray you, father, consider that I am young and a stranger to both my Indian brother and his people; and also that it is not customary, nor thought prudent among us, for a maiden to declare her mind at once. Give me time to think over the matter, for it is of great importance to me. Besides, my father has not been consulted; and you, wise chief, know that neither among the Indians nor the pale-faces is it thought right for a daughter to make any such contract without her father's knowledge and consent."



THE MAIDEN AND NATURE.

Once more the uncle and nephew talked in their own tongue, and then old Redhand said: "Your father could have no objection to the son of Shingis, who is above any white squire he could choose for you; but he will not trespass on the customs of your people. Take time, as the white women do, to try the truth and constancy of their lovers. My nephew will not be found wanting to you in anything. But they have lighted the council-fire, and the dews of night are falling; and rising quickly, he took Constance by the hand and led her to the wigwam.

Like the supreme court of ancient Athens, the Indian council holds its sittings by night. The council-fire was lighted in the midst of an open space at the end of the village, set round with trees which their fathers had planted; for all summer assemblies were held there ever since the Wampanoags settled in the valley. The dignitaries of both tribes sat round the fire on logs; behind them the common braves stood in a double circle; but the general public, including boys and squaws, were rigidly barred out, and they spent the time in domestic industry, quarrels, and sports, which kept the whole village astir while the council lasted.

While all were thus occupied, Constance took the opportunity to inform Hannah of the Mohawk's proposal, in hopes that the good woman's knowledge of Indian life and character might enable her to give practical advice as to the best mode of staving off the intended honor. She found the Quakeress seated in a corner of the deserted hall, reading Greenland's Bible by the light of a pine torch.

At the first revelation, Hannah looked frightened for a minute, and then said, with her usual calmness, "Child, it is a perilous business, and one which may prove, even to thy youth, the dangers that follow upon outward fairness which so many covet. I cannot advise thee to anything better than that which thou hast done. To gain time is the only safe course. Help may come to us by the bands of backwoodsmen who will now be marching eastward to aid the people of Massachusetts. At any rate, put thy trust in the Lord, and he will open a way of escape before thee. By his good providence, I hope friend Greenland is by this time safe out of the Indian country. He slipped away two days ago, and does not yet seem to be missed. He is well accustomed to journey in the wilderness, and prayed me to go with him. I think these woods inspire men with vain notions of earthly affection; but I would not venture it, or leave friend Jacob and thee behind, he left me his Bible in token of remembrance, and promised if he could find his way to Philadelphia, to make known our case to friend Caleb and Rachel, who are no doubt there, and will take every lawful means to free us from the hands of these forest Philistines. Therefore, child, keep a good heart; but we that remain here had need to take care, and seem to know nothing of the matter, for if they thought we were taking any measures to frustrate their design, or get thee out of their tents of Kedar, our lives would not be safe for a day."

CHAPTER XXI.—A SHORT WAY WITH A RIVAL.

As gaining time was the best course which she could think of, or her friend advise, Constance resolved to persevere in it. To some extent that was not difficult. The article is of little value in savage life, except in striking down an enemy on the war-path. The Indian is never in a hurry; and Redhand and his nephew kept their promise not to trespass on the customs of her people. Both were bent on the match, nevertheless; the white squire's daughter, with her fair face and ample prospects, was not to be let slip through their fingers. They had a shrewd suspicion that her father and friends in Massachusetts would scarcely consider the son of Shingis an eligible alliance, notwithstanding the number of scalps his sire had taken.

Main-rouge was too well versed in the white man's fashions and opinions to be mistaken on that subject. He had evidently made up his mind to get the business done before any intelligence of it could reach them, and took his measures accordingly. A watch, such as Indians alone could keep, was set upon all the white people in his dominion; warriors, squaws, even children, took note of all their movements, though escape, without guides, and unacquainted with the surrounding wilds as they were, could only present the chances of dying from hardships in the wilderness, or falling into

worse hands among the native tribes. When Jacob ventured to remind him of his promise to send them all safe to Philadelphia for Delamere's sake, the statesman of the woods replied with a look that prevented further applications on that score: "Has the son of Penn so little patience or good manners that he cannot wait for his red father's leisure from entertaining guests and holding councils on weighty affairs?"

At the same time, the old chief took every opportunity to plead his nephew's cause with Constance, which his powers of speaking English enabled him to do better than most red men. He assured her, over and over again, that Kashutan would be a white husband to her; that all his kin, including the old squaw, his mother, would be white relations to her also; that her marriage should be according to the laws of her people, celebrated by a frontier justice with whom he was acquainted; and described with great unction the succeeding ceremonies, festal and serious, which should take place in his own and Kashutan's territory, from those performed by the sorcerers to ensure the happiness of the wedded pair, to the bridal feast held in his own wigwam (for was she not his daughter?), and the still more magnificent festivities with which the young chief's mother would welcome her home.

At times the old Masates, who had been educated among the merchants of New York, would commend the Indian life to her choice as so much happier than that of the white people.

"The years of the pale faces," he said, "are worn away in toil; they hew down the woods and make corn lands more than they want for bread; they build towns and villages that cannot be moved, and strange diseases fall upon the inhabitants and wither their youth; they set up forges and factories, schools and stores, and these prove houses of bondage and labor to them and to their children. The Indian dwells in the woods and rejoices in his freedom. The passing seasons find him strong as the trees, till his time to depart for the spirit country is come. He goes forth to hunt in the freshness of the morning, and returns laden with venison and game enough to spread a feast in his wigwam. Then he smokes with his friends by the winter fire, or rests in the summer shade."

"But your squaws work continually," said Constance.

"True, my daughter," replied the Indian moralist; "and it is best they should; without work our squaws would be taking foolish whims and causing mischief, as many of the white women do. Had Major Danby's squaw been dressing skins or hoeing corn, our tribe had not lost the daughter of their former chief, nor got occasion of wrath against her. But the Great Spirit has appointed that every race should follow the fashions of life most fit for them, so the red and pale faces differ in customs as well as in color."

However approved of by kith and kin, courtship is an affair of great secrecy among the Indian tribes, no doubt the secret adds to the romance, and the wooer's part in the play ill accords with the red man's idea of masculine dignity.

While his uncle thus sapped and mined the approaches to his chosen lady's heart, Kashutan paid her no public attentions; but he was daily sending gifts of furs and feathers, Indian ornaments, some of them of beautiful workmanship, strings of uncommonly large beads and bright-colored pebbles, such as Constance had never seen before. Curious enough, those offerings to her shrine were generally transmitted by the hands of Philip, exactly as Sydney Archdale's presents and messages used to be, and quite as carefully hidden from all prying eyes as the latter were from the notice of her father. Kashutan had taken the boy, in a manner, under his protection, as, indeed, did most of the warriors, for Philip's good nature and activity recommended him to their favor; but the chief had specially enlisted him in his service by the bestowment of a buffalo robe and an English fowling-piece; so the page carried not only his presents, but his praises, to Constance. "Indeed, miss, he is a fine man—a gentleman, I may say, and not so very copper-colored after all; it's a pity he can't speak English to tell you his mind, for I am sure he is far more in love with you than ever Mr. Sydney was, with his goings on about Liberty and Minute Men."

To consign the nephew of Main-rouge to despair would not have been a safe course for a lady in her position; so the lover's gifts were graciously accepted, and his

praises heard with scarcely a rebuke to the gained-over Philip.

There was much truth in them; it was an honest and devoted love that made the noble young Mohawk, in spite of the difference of race, language, and manners, her unredeemable bondsman. He would steal round the wigwam when there was no observer near, to catch a glimpse of all in her room through the slit in its wall, which served for a window; he would stand in some hidden corner from which she could be seen, gazing upon her as long as he was unnoticed by brave or squaw; and at such times the chief of the Puma tribe had a look so sad and tender, that Constance wished from her heart he had fixed his affections on some Indian maid who could give him in return a love that had not been lavished away like her own.

By chance she discovered that there was one in the village to whom that wish was at least friendly. As the time of the Mohawk's visit wore on with hunts, feasts, and councils—nights through which the whole village were awake, and days which the entire community slept away—Constance observed among the unmarried girls (there were none but girls unmarried there), who sat in groups under convenient trees, watching the evening sports of the young men, or danced in circles on the open ground, while the youthful warriors stood contemplating their performance, one called Osuna. She had a large share of the beauty which passes from the Indian woman with early youth; a tall, slender, and finely moulded figure; a clear though brown complexion; the features of her race, softened till they became almost classical, and an abundant growth of dark and lustrous hair. Osuna had many admirers; feathers and beads were thrown to her in the dancing circle, as bouquets are flung to favorite performers on the stage, but she never stooped to pick them up as the rest did—a certain sign that none of the braves who threw them had found favor in her eyes. Constance had by this time got in some degree acquainted with the daughters of the tribe; they paid her great respect as the adopted daughter of the much-reverenced Redhand; admired her dress, though it was well-worn homespun, and imitated her style of braiding and ornamenting with wild flowers the hair that was still more abundant and beautiful than their own. But Osuna kept aloof from the fair stranger. Sometimes Constance thought she looked askance at her, too, till one day, after Kashutan had taken a long gazing turn, and gone his way, Constance stepped out to the little arbor where his love-dance had been performed, and to her astonishment saw Osuna sitting on the ground behind the stooping tree, and weeping bitterly.

The griefs of others found a ready sympathizer in Delamere's daughter; her father's generous mind had descended to her gentler nature. She stole round to the Indian girl, sat down beside her, and made every sign of cheer and comfort she could think of, having no other language that Osuna could understand.

At first the Indian girl looked surprised, and inclined to be angry, then she wiped her eyes with the handkerchief. Constance offered her, and finally fixed them on a necklace of large beads and beautiful pebbles—Kashutan's latest gift, which his fair one chanced to be wearing. Osuna looked at the necklace so long and admiringly that Constance imagined the nearer inspection of it might console her for the time; and taking it from her own neck, she was about to point out its beauties, when the Indian girl, before she was aware, snatched the shining string from her hand, thrust it under the folds of her own cotton robe, which were tightly gathered round her breast, sprang up, and ran away.

Constance never again saw the necklace, but from that day Osuna was her particular friend; she brought her wild flowers and berries from the woods, wild birds' eggs roasted in the hot ashes, and fresh fish caught by herself in the streams. While the married ladies and slaves do all the work, the Indian maids are not expected to do anything but dress and amuse themselves; like the nuns of Italy in former days, they enjoy all the pleasures of life before they take the vows. Thus, Osuna had ample time to show her friendship to the white woman, and Constance being naturally interested took the first opportunity to learn something regarding her new friend from the only person with whom she could converse, Kashutan's uncle.

"She is the daughter of the chief who led the tribe when I left them," he said; "a man wise in the council

and valliant on the war-path. He was not of my descent, but his fathers had been chiefs on the banks of the Connecticut, and the braves made choice of him in mystead. The thing happened in this way: When the French lost their strong places and trading ports, my warriors said, 'We will go with them no longer, but be brothers to the English, for they will give us rum;' then I flung my speech belt in their faces, and said, 'I will not be the chief of false men,' and went far west, where I lived hunting with Boone and his people for many a year, and Osuna's father led the Wampanoags. When he was called to the spirit land, and left no son, the warriors sent messengers to me, saying, 'The hatchet is about to be lifted between King George and the pale faces here; come and lead us again, and we will take what side you think best on the war-path.' So I came."

"Osuna is of good descent, then," said Constance.

"She is," said Redhand; "her mother found a brave warrior to bring her home venison; and so might Osuna, but her dream is of my nephew, Kashutan."

"Well, father," said Constance—she understood now why the Indian girl sat weeping on the ground, and hid away the necklace—"would she not make him a more fitting squaw than the daughter of a stranger?"

"She would, my daughter; his mother and his people think so. But we cannot say to the stream that flows to the sunset, turn, and go the way of the morning, for that is the better course; no more can we say to the heart of the youth or the maiden, turn from yonder stranger, and go to such and such of thine own kindred, for they are a better choice. Besides," continued the old chief, and his face darkened almost to a frown, "my daughter would not surely cast away from herself such a noble and honorable match as the Chief of the Mohawks? for such my nephew shall be when he has chosen his side and gone forth on the war-path."

Constance said no more on that subject; but the luckless love of the Indian girl took hold on her imagination, and enlisted her sympathies, the more because her own young dream had been so strangely crossed. She admired Osuna's generosity of mind, that could take into friendship a successful, though unwilling, rival. It is the reflection of our own characters that we are apt to see in others. The real deceiver is generally within, and so it was with Constance. But there came a day that showed her the true state of the case.

The village was particularly quiet one forenoon; the chiefs and their braves had gone on a grand hunt; the squaws were more than usually busy preparing for a feast which was to take place on their return. Hannah was assisting those of the chief's household. She had become popular among them, on account of her domestic skill. Jacob and the Vanderslocks were with the men who kept the cattle in the wild meadows of the valley; Philip had been allowed to go with the hunt; and Constance sat alone under the stooping tree, weaving a basket of fine osiers and porcupine quills, an art which she had learned from the Indian girls. It was a beautiful bright day of early summer—the days of June had come by this time—and Osuna tripped up to her, looking almost as bright, with a wild rose of uncommon size and sweetness in her hand.

As Constance admired and praised the lovely flower, the Indian girl gave her to understand by signs, of which Osuna was a perfect mistress, that she knew a place where such roses grew in abundance, and wild strawberries could be gathered by thousands, at the same time offering to show Constance the spot if she would accompany her. Such a trip was quite to the New England girl's mind. She laid aside her basket, and followed Osuna with as light a step as her own. The latter made a sort of circuit round the back of the village, evidently avoiding the observation of its inhabitants, till at some distance beyond the last wigwam and the place of the council-fire, they suddenly came on a bed of the stream which wound through both village and valley. Here, in the shade of overhanging willows, was moored a small and highly ornamented canoe, in which Constance had seen the Indian girl paddling up and down stream on her fishing expeditions. Osuna signed to her to step in, and without fear or misgiving stepped Constance, seating herself so as to preserve the balance of the light vessel, and her companion, with an approving smile at her dexterity, unmoored the canoe and paddled away. The current was with them. Though smooth it was a rapid one, and the white girl was not

aware of the speed they were making. The country around was unknown to her, but the course of that stream was from one scene of beauty to another. Now it swept round the base of a wooded hill, a thick forest on one side, and opposite it wide prairie lands, where sight failed in the distance; then it murmured through a narrow glen, where the boughs met overhead, and plants laden with summer blooms bent to the water below; and anon emerged on a glassy dell, open to sun and sky in the center, and on either side shaded by old, majestic trees.

Not even on the windings of her own Connecticut, where Sydney rowed and steered the boat long ago in their happy playtime, before questions of government and taxation had divided their people and their paths, did Constance rejoice more in the sweetness of summer and the loveliness of nature. The strange birds, the wild flowers for which she had no name, and the landscape so fair and free in sunshine or in shade, all delighted the girl who had lived so long in restraint and fear among the wigwams.

Osuna seemed to enjoy the voyage as much as her companion. They made known their pleasure to each other by signs so expressive that speech was hardly needful, and all went pleasantly till they reached the end of one of those green and quiet dells, sunny in the middle and shady on either side. There the stream turned sharply down a steep so thickly wooded that its course seemed to be lost in the darkness. Osuna paused at a safe distance above the descent, where a little creek indented the sloping bank, and pointed out to Constance a tuicket but a few steps removed, in which the promised roses grew in clusters, making her at the same time a sign to land and gather them, while she kept the canoe from floating down the stream. It was but a moment's work for the active girl. Constance reached the thicket and gathered some splendid clusters; but turning to wave them in triumph to her companion, she saw Osuna paddling up stream at a rate which made sign or call alike hopeless. In her desperation she ran down to the water's edge, crying, "Osuna! Osuna!" but the Indian girl never looked back. In another minute the canoe was lost to sight behind the overhanging trees, and Constance was left alone in the trackless wild.

CHAPTER XXII.—FRIENDS FOUND IN THE WILDERNESS.

The cruel treachery of her pretended friend was now apparent. Osuna had deliberately laid and carried out a plan for getting rid of her unsuspecting rival. Overwhelmed by the terrors and prospect, Constance sat, or rather sank down on the grassy bank. What would become of her without guide or guard in the unknown wilderness, the haunt of wild beasts, and men scarcely less savage? But a few minutes' thought restored her native courage; help might be nearer at hand than she was aware of; the summer day was still shining around her, and she had the surest Protector above.

Commending herself to the care of that best and wisest Guardian, Constance rose and looked around her down the wooded steep, where the stream was lost in the darkness of interlacing boughs, up the dell where Osuna and her canoe had disappeared. It might be possible to reach the Indian settlement by following the windings of the stream in that direction; but the distance was great, the banks they had passed afforded in many places but perilous footing, and the night must fall before she got half way, for the declining sun told her it was already far in the afternoon. Besides, any chance of reaching the confines of civilization would be more to her mind than going back to the clutches of old Redhand and his nephew.

To get a clearer prospect, she climbed a rugged cliff that towered above the thicket. From its summit Constance saw a wide expanse of hill and dale, but all densely wooded, silent, and solitary.

She descended, and walked about in every direction where an opening between the trees presented itself, in hopes of finding some beaten path or sign of human habitation; but nothing of the kind could she see. At last, exhausted in strength and spirits, hungry, and footsore, Constance sat down on the trunk of a fallen tree; the sunset was flushing the forest with its rosy light; the wild birds were flying home to their nests, and she trembled at the thought of the night coming down on her unsheltered head, when a sound came through the silence of the woods like the tramp of heavy

feet. It seemed passing close behind a clump of tall beeches on her right hand. She darted through the trees and underwood that blocked her way, but paused for a moment as she came near and looked out from the deep shadow. There was a bridle-path leading down a hillside, a train of men and pack-horses rapidly descending, and a voice above singing a verse that frequent hearing had made familiar to her ears in the pleasant grounds of the Elms.

"I'm far away this blessed day,
And ne'er may see the shore,
Agra machree, sweet liberty,
Poor Ireland asthor."

Constance lived to hear the cannon thunder and the bells ring out the proclamation of peace and freedom to her native land. But no sound ever delighted her ears more than that voice and song, for they were those of her father's best man, honest, faithful Denis Dargan. Moving up a little, she could see that he had stopped behind the rest to adjust the load of one of the two horses he had in charge, and half wild with joy the young girl stepped out before him, exclaiming, "Oh, Denis! but I am glad to see you."

"Protect us! is it seein' ghosts for my sins I am?" Miss Constance, darlin', where did you come from?" cried Denis, letting rope and pack fall in his astonishment.

"It's a long story, Denis, and will take time to tell; but I am very tired and nearly starved with wandering about in these woods. Could you give me a lift on one of these horses, and a morsel of bread of any sort, and let me go with you wherever you are going, for I know you will see me safe?"

"It's proud I would be to do more nor that for any lady; an' layin' down my life wouldn't be too much for your father's daughter. Here, darlin'," and Denis took out of the knapsack at his back a neatly put-up luncheon of corn-cake and cheese. "Jist thry that while I make a saif for you between the packs on this baist, because, you see, he's the quietest, an' we must get on."

By means of his own great-coat, which had been bundled on the knapsack, as he said, "for fear of cowl among the hills," and a judicious arrangement of the packs, Denis made a very good substitute for a lady's saddle, and helped Constance into it, declaring that she would sit there like a queen, and set forward to join his company, who were by this time some way in advance. The heiress of the Elms discussed his welcome present, washed it down with a draught of cider from Dargan's wooden flask—the Spartan sauce is a great improver of the most common fare; then she briefly related the misfortunes that had befallen her company and herself on their way to Pennsylvania, and the treacherous act of the Indian girl by which she had been left alone in the forest.

"Oh, the deceitful serpent," cried Denis; "shure she must have had the heart of a say monsther to forge such a plot agin a girl like you; but never mind, Miss Constance, you're safe from the wild baists o' the wilderness, and the hands o' thim rid baithens that isn't much better."

"True Denis; but what a mercy it was I met with you. And what province is this we are in?" said Constance.

"It's Massachusetts, miss, as far as they can agree about the boundaries. We'll soon be in the Christian parts o' the country, but not near the Elms at all, because this is the New York side, an' it's on the Connecticut quarter. Howsomever, it don't signify, seein' the place is confiscated," said the best man with a sigh.

"Confiscated, Denis?" It was sad intelligence regarding her old home for the squire's daughter. "Was that the reason you left my father's house?"

"I didn't leave it till they exhorted me, miss."

"Denis, how did they do that?" inquired the girl, considerably puzzled.

"Well, miss, they pult me out by the neck," responded Dargan. "You see it was this way. We were all at paice and quietness, whin one night a chap come through the country wid a dhrum, telling them all about the fight at Lexington, and how the patriot army was besaiging Boston, an' bad luck to the man that didn't get pitchforks an' guns an' set off to help them, lavin' nobody at home but the woman an' myself. We would have got on like the flowers o' May widout

them, miss, but in less nor a fortnight, there comes a thundherin' rap like a battherin' ram at the door one mornin', an' in comes an ould sinner wid a paper that he said was his commission from the Continintal Congress, an' fell on readin' it. In coarse I could make neither head nor tail o' the mainin', but the upshot was that he was to sind the women to their frinds, an' me about my business, an' keep possession o' the place for the sarvice o' the province, because Squire Delamere was an enemy o' his country. There was no sayin' agin' him, he had a gang o' thim Green Mountain Boys, wid Hiram Hardhead prophesyin' black and blue, the baist! an' he's not a baist neither, for he wouldn't let them put me in the Connecticut for layin' the rough side o' my tongue to them. 'Let him go,' says he, 'he's thrue to his employer an' it's not his fault that Delamere's such a Tory.' Well, that brought them to a bit, and at last, for dacency's sake, they consented to let me take the smallest wagon an' put the thrunks that Mrs. Armstrong locked up your fine clothes in, wid the most o' the masther's books an' fancy things, inside of it. You see, miss, I intended to take them straight to you in Phila delphy, but misfortune never come single. I was getting along Springfield Road; the whole country was quite round me, the men bein' all at the besaigin', an' the women—the darlins!—frightened at bein' left by themselves, not a soul was to be seen, an' I was singin' to myself the ould song you heard me at, when out of a wood leaps a company o' king's soldiers, and one o' them, layin' his hand on the wagon, while the rest got hould o' the horses, cries, 'We saize this for his majesty's sarvice.' 'Murther!' says I: 'what does the king want wid a lady's ruffles an' tuckers?' 'It's no matter,' says he; 'them thrunks must be examined; maybe they contain contraband o' war; an' you may think yourself well off that you're not hanged on that big tree for treason,' says he, pointin' till a moighty fine oak. 'Why?' says I; 'what did I commit?' 'You sung about liberty,' says he; 'an' that's counted treason in the ould country.' 'Is it?' says I; and wid that I snaps up the bit of a fowling-piece I had on the top of the wagon an' linds him such a crack wid the stock of it as he'll remimber while he has a skull. In coarse, they all chased me, an' I run for me life; but when I got clain out o' their reach, say I to myself, 'Since that's the chat, I'll be as big a patriot as any o' them.' So I went straight to the camp before Boston an' listed in Col. Archdale's militia. Miss Constance, that's a moighty fine rigiment, and has the rail moral of a commander! Thaddy Magrory's a captain in it; you'll remimber him, miss, runnin' Hiram Hardhead out o' the Elms. It's in his company I sarve; but, you see, ammunition is scarce in the patriot army, an' the colonel found out there was a stock of it laid up in a small fortreth on the New York frontier called Cumberland Station, wid nobody but an ould major an' some rusty sodgers to guard it, so he sint Thaddy and us up to fetch it to the camp. Says he, 'Be civil to the ould major, for he niver did harm or oppression.' Oh! Miss Constance, he's a rail good young man. So we went up an' tuck the fortreth; the major surrendered like an ould jewel to purvent the diffusion of blood. Between ourselves, him an' the sodgers was shakin' in their shoes for fear o' the Indians, on account of some offence his lady give the haithen sowis. Howsomer, sne's livin' safe down yondher in Prospect House, an' Thaddy's bringin' the major down wid him under promise not to bear arms agin the patriots. The sodgers promised the same, and the most o' them slipped away to squat on the frontier. Keep up your heart, miss, for here we are in sight of the Dutch settlement called New Harlem."

The night had fallen now, and the lights of the Dutch village were a welcome sight to Constance. It was the first outpost of civilization on that side of the frontier, its farms and homesteads indenting the forest as the bays of the ocean indent the shore. There they found the rest of the company halting at the village inn, which was kept by a sturdy couple of the Vanderslock type, the only people who could speak English in the settlement; and they agreed to accommodate the young lady in their parlor, the one place of rest they had for genteel travelers.

"Don't be throubled about the payment, darlin'," said Denis, "neither the ould sinner at the Elms nor the thieves of king's sodgers got my money that I saved in your father's sarvice; I have it all here in the foot of a

silk stockin' that my mother was married in—at laist, they tould me so;" and he pulled out the relic, which had rather a weighty appearance, and thrust in into Constance's hand.

"I must borrow some of it, Denis," she said, trying to keep back the grateful tears which the generosity of the noble fellow brought into her eyes.

"Keep it all, my darlin', it's your own to the last farthin', only just take care o' the stockin', it's the only keepsake I have o' the ould country and thim that wint down to the deep say. But I must find some better frinds for you;" and off went Dargan.

In a minute or two he returned, bringing with him Captain Magrory and Major Danby. The latter, a gallant old veteran whose days of active service seemed at their close, introduced himself to Miss Delamere in the complimentary style of the day—regretted that he could not place a chariot, or even a suitable horse, at her disposal, but humbly hoped that when they reached Prospect House she would allow him the honor of introducing her to Mrs. Danby, who would be delighted to receive as a guest a lady of her merit and family.

Constance made the best acknowledgements she could think of; indeed, the invitation which honest Denis had secured for her was a real kindness under the circumstances, for her aunt had left Springfield at the beginning of the insurrection, and the young girl knew not where to find even a temporary home in her native province. Magrory had ably seconded Denis's well-judged application to the major. Being captain of the capturing company, his words had weight, though the like was little needed with Danby's good nature. He stood aside till all the compliments were paid and responded to, and then said he was sorry Miss Delamere had been so much put about, and advised her to go to sleep as soon as she could, for they must start early in the morning.

Constance took his advice; but it seemed scarcely an hour to the tired girl till Denis was knocking at her room-door in the first gray light, and calling upon her to rise and go with him.

The whole company was soon on the road again, and going at a gallop, for now their way led through the farms and villages of long-settled and cultivated Massachusetts. But there was not a man to be seen in the meadows or cornfields, and the women and children, who were doing what they could there, paused in their work and looked anxiously after them as they passed.

At length the neighborhood of Boston was reached; and what a different scene presented itself. Along the public roads, bye-ways, and lanes trooped maids and matrons, boys and girls, some with carts, some with pack-horses, and some with baskets on their own sturdy arms, bearing provisions to friends and kinsmen who had no other commissariat to depend on. For miles all round the landward side of the beleaguered town stretched the camp of the New England men, some quartered in tents, some in huts, and some in temporary sheds that served for barracks, clothed in the homespun cotton which formed the summer dress of the country people, armed mostly with fowling-pieces or hunting rifles, and officered by their neighbors of more or less experience in military affairs. That rustic rout, as the British authorities called them, had for two months hemmed in five thousand of England's best troops, and were ready to meet five thousand more who had lately arrived by sea.

It was noon before Captain Magrory's company reached Prospect Hill—a height some two miles west of Boston, which was afterwards fortified, and has become historical as the spot from which Washington surveyed not only the American camp, but the British garrison, for camp and town lay like a mapspread out below. At the time of our story there were no buildings on the hill but one solitary and singular-looking dwelling, which stood near its summit, and was hence called Prospect House. It had been erected in the latter half of the seventeenth century by an emigrant from England, who got an ill-repute for magical practices, chiefly on account of a particular apartment, built like a turret on the roof, and having more than the usual supply of windows, but later times discovered him to have been an amateur astronomer, and the turret-room his private observatory. Though not exactly ruinous, it was a decayed, neglected place; few tenants cared to remain long in a situation so exposed to winter storms and summer sun; and in the changes that have passed over the neighborhood, the

astronomer's house has disappeared long ago; but as Magrory's company neared the foot of the hill, Major Danby came up to Constance, and said, "Miss Delamere, here are our quarters for the present; I am sorry we have no better home to offer you;" and he would have handed her from between the packs with stately courtesy, but Denis anticipated him.

"Shure, you'll be kind to the young lady, major—you an' the missus, beir' rail ginthry yourselves—an' her father, the squire, will never forget it. Isn't he the moral of a king officer? Good-bye, Miss Constance, darlin'! take care o' yourself, an' the Lord take care o' ye too; I'll come an' see you as soon as I can, but there's hot work before us now;" and away galloped Dargan after his captain and company, while the major and Constance turned up to Prospect House, and out of its door to meet them came Lieutenant Gray.

"Miss Delamere, it is an unexpected pleasure to see you here," he said. "I wish, for your sake, the neighborhood was more peaceable; but things never go as one wishes. Major Danby, I am sorry to find you in my own care; you must know I am a prisoner en parole to these American worthies; the scoundrels I had for a company in a guard-house on the Lexington road, one of old Gage's inventions, deserted me at the first brush."

"The chances of war, my dear fellow!" and the major returned his hearty shake-hands. "The chances of war have come to us both; but, between ourselves, I was not grieved to give up my garrison in yon ill-starred station, and come down here to present our fair friend to Mrs. Danby."

"Mrs. Danby is gone to Watertown," said the lieutenant. "She heard there were Indians coming to the American camp on some business, and thought it better to get out of their way."

"Oh, yes; she got into a scrape with a wild lot up yonder. Mrs. Danby does get into scrapes sometimes," said the major; "but, sir, she is a wonderful woman for teaching the ignorant, and all that sort of thing."

"So I understand," and the lieutenant tried hard to suppress a smile. "But she started for Watertown early yesterday morning, taking her two maids with her, so I am alone in the house. But they say we gentlemen on parole will all have to go to Watertown when George Washington comes to put things in regulation. However, there is no moving just now. Major, you are in time to see a sharp action, as I think it will be; so are you, Miss Delamere, if you don't faint or go off in hysterics."

"I am a soldier's daughter, sir, and will not trouble you with anything of the kind, said the high-spirited girl.

"Bravo! Wouldn't the squire be proud to hear that! Come along, then, there never was a position for seeing like the turret-room of this house. I have two famous glasses, and one of them is at your service, my girl." And the lieutenant led the way into the solitary house, and up the narrow stair, to the star-gazer's room on its roof.

CHAPTER XXIII.—A TERRIBLE OUTLOOK.

Till she stood at one of the windows of that elevated apartment, her clear young sight supplemented by the obliging lieutenant's glass, Constance had no idea of the scene that awaited her. There lay the scattered camp of the Americans; there stood the now fortified town of Boston; and there England's ships of war rode at the mouth of Charles river. But from the city roofs and the country hill-tops, from every ship's rigging and summit around the harbor, people were looking away to the heights above Charlestown. Her schooldays in Boston, and recent sojourn with the Quaker family there, had made her well acquainted with the almost united ridges of Breed's and Bunker's Hill; grass-grown steepes, the pasture-ground of sheep and cattle, they had been in other summer times; but now the highest summit was crowned with that roofless fortress which military men call a redoubt; and on the slope below a strong breastwork gave token of expected attack and defence. The lieutenant's glass was scarcely requisite to let her see that the redoubt was filled, and the breastwork lined, with men, all provincials, wearing the country clothes in which they had worked in farms, mills, and forges, and carrying the arms which they had been accustomed to use in winter hunts and summer shooting-matches.

"Wasn't that a surprise for old Gage this morning?"

said Lieutenant Gray. The two old soldiers had taken up their position at a window which commanded the best view of the heights, as a couple of connoisseurs might take the best light by which to criticise a painting, or the most convenient box from which to witness the performance of a new drama, and it was divided from the one at which Constance stood by a fixed screen, or half-partition, which had somehow served the ends of the astronomer in his day; so that she was out of their sight, though near enough to hear every word that passed between them. "The fellows managed it all in the course of last night. I knew there was something to come off when I saw them having prayers by lantern light on Cambridge Green. These Americans do hold on to the religion, major."

"Well, Gray, it's not such a bad thing to hold by, though in my youth we thought it fit for nobody but parsons or Methodists. But they are all countrymen; do you think they will stand any time?" said Danby.

"I don't know," said the lieutenant. "There are men among them whom you and I have seen doing good service in the French war. There is Prescott, commanding in the redoubt—I can recognize him at this distance; and there is old Israel Putnam, who had such an escape from your lady's friends, the Indians, twenty years ago, riding about in his shirt-sleeves; and, I do believe, there is the minister, McClintock, who used to preach to the Massachusetts volunteers, exhorting and praying with them every one. There are some red-hot young rascals, too, at the breastwork. Those forward men are Archdale's militia. Their colonel—they take his name, you see—is a regular firebrand for the American cause. You remember his father and Captain Delamere—what brave soldiers and true friends they were; fine fellows at the mess-table, too, for New England men. One could never have believed they would turn against each other and take different sides, but they have, nevertheless; and young Archdale, who was courting Delamere's daughter, the girl you have in escort—what a good thing she has gone away before I began chattering—is going to marry a Quaker's heiress, to help his militia raising, I suppose. There he is, at the head of his regiment, a brave boy, I'll warrant. But look, we shall see if they can stand now."

As he spoke, the thunder of cannon from the ships, and a double line of barges faintly seen through the smoke, announced that British troops had crossed over from Boston, and were landing under cover of the fire.

At the same time bodies of provincials came up the hills from Medford to reinforce the defenders. By-and-by more barges and more troops were seen landing at Moulton's Point; the cannonade continued till the earth seemed shaken, and the heavens darkened, but the lieutenant and the major calmly speculated on where the attack should begin, and whether the breastwork or the redoubt should be first carried.

At last the thunder ceased for a moment, the summer breeze rolled back the heavy curtain of sulphurous smoke, and then, in all the pomp of brilliant uniforms, gleaming arms, and flying colors, King George's men advanced in two divisions, one against the breastwork, and one against the redoubt.

"Howe means to carry that position," cried the lieutenant, as he saw the first come on; "old Stark, with his Hampshire men, and young Archdale, with his militia, can't hold it long; for, to my certain knowledge, part of that breastwork is made of rail-fences and new-mown hay. Don't the Grenadiers come up in splendid style? They are not all from England, though. There's Delamere's regiment, the Royal Canadians; they have made him a colonel for his services in the fortifying of Boston, and no man deserves promotion better, a soldier and a gentleman, every inch of him; there now, I think I see him. It would be a sad thing if he and his old friend's son should come to close quarters this day."

Constance heard no more. She had tried to see Sydney, and tried to see her father, but neither the glass, nor the position she had, were as good as those of the lieutenant. From the roofs of Boston, and the summits of surrounding hills, thousands were looking out for the issues of that battle, and many had near relations engaged in it, but few had a stake so heavy as her own. The love of her childhood, and the chosen of her youth, her father, and her first love—in spite of the probabilities regarding the Quaker's heiress, Constance knew he would be the last love too—each bent to con-

quer or die on a different side, and likely to meet that day in mortal combat! The lieutenant's words smote her ear and heart more heavily than the thunder of the cannon. Unseen in that hidden corner, she sank upon her knees and prayed without speech or voice (for the girl could find none) that whatever else was determined concerning them, neither might be permitted to shed the other's blood.

Again the roar of cannon, but followed this time by a volley of musketry, made the hills reecho; the redoubt and the breastwork were at once attacked and defended with equal bravery. From that small window Constance saw, as the rolling billows of smoke allowed her, British regiments whose colors were inscribed with many a victory over the first armies of Europe, recoil from the deadly fire of the provincial marksmen, and fall like corn before the reaper's sickle. Twice the attack was renewed, and twice the assailants were driven back with a slaughter so fearful that even British courage failed, and a general retreat seemed inevitable.

"Would you have believed that, major?" cried the lieutenant; but his expressions of astonishment were cut short by the noise of bursting bombshells; and up from the thickly-clustered houses of Charlestown rose a broad, red column of flame, followed by another and another, till the oldest town in the New England provinces, with all its timber dwellings, stores, and churches, was in one wide blaze, and a body of sharpshooters, on whose account the shells were thrown, retired from it in good order.

Removed as the three in Prospect House were from the scene of actual danger, the glare of the burning town and the roar of the battle were so appalling that the two old officers laid down their glasses, and Constance crouched in the corner and covered her face with her hands. When she looked out again it was to see the provincials driven from the redoubt; in military phrase, it was carried at the point of the bayonet, for the ammunition of the marksmen had failed.

The defenders of the breastwork stood fast for some time, but at length she saw them also give way before the British steel, and rush in a headlong route down Bunker's Hill; yet there was one body of men that kept the field longest and last, disputing the ground by inches, and covering the retreat of their companions in arms.

"See yonder!" cried the lieutenant, "Archdale's militia are doing service I would not have given them credit for—saving the skins of all the rest in that fashion. They must have caught the spirit of the young firebrand at their head, for I have heard that few of them were ever in action before. See in what good order they retire," he added, as those last disputants of the hard-fought field turned down the hill under a furious cannonade from ships and batteries, and were lost to sight in its smoke.

"The king's troops have won the ground, but, I fear, at a terrible price," said the major.

"Yes, sir," said the lieutenant, "they have won the ground, but the provincials have this day won a military reputation that will henceforth make them our equals in every soldier's reckoning."

By degrees the cannonade ceased; the blazing town fell in heaps of smouldering ruins; the provincials retreated to Cambridge, the British remained in possession of the heights, and the summer evening came down on those grassy hills now strewn with more than fifteen hundred slain, two-thirds of whom wore the British uniform.

Distance from the scene of action spared poor Constance the sights and sounds of the battle-field when the fight was done, with which her companions on the outlook were but too familiar. A terrible uncertainty as to what might have befallen her father or Sydney pressed heavily on her mind; but the girl was worn out, as overwrought youth is apt to be, and, silently stealing from her post behind the screen, that her involuntary eavesdropping might not be suspected, she made her way to one of the rooms below, which had been the astronomer's best parlor.

There was little furniture in Prospect House. Mrs. Danby and her two maids had taken with them everything that was conveniently portable, and nothing remained but what a timid or careless tenant had left behind when hastily quitting it on the first formation of the American camp. The parlor contained only a small

side-table and an old-fashioned, crazy settee, which might have been the boast of some aspiring colonist in former times. On its hard cushions Constance lay down, and, in spite of her strange surroundings, fell fast asleep, while the old and much-fatigued major forgot his cares on a dismantled bedstead in another apartment, and Lieutenant Gray went out to gather news and forage for the party, as his negro servant Pompey was nowhere to be found.

Two hours later, the lieutenant having returned from his mission, softly opened the door and looked in upon her, but Constance never woke.

"Poor child!" said the brave old soldier; "the day has been trying to her;" and, turning from the room, he brought the only blanket to be found in the house and gently spread it over the sleeping girl; then he brought her share—the very best of the coarse provisions he had been able to obtain—placed it on the table by her side, and saying, "The Lord keep you and us all!" quietly closed the door and retired to his own rest on an old sofa in the astronomer's library.

Constance slept on for hours the dreamless sleep of the weary, which fell on thousands that summer night in the tent-studded country and the leaguered town, but the heavy sleep grew lighter as the early day crept in through the scantily-curtained windows. A sound somewhere in the room woke her up at once, and, looking up, she saw what in the dim light, and with the terrible impressions of the preceding day fresh in her memory, the girl took to be a spectre.

In the open doorway stood a tall figure with long white hair, and dressed in an antiquated fashion. But the next moment she knew it to be an earthly man without a coat, and wearing a long waistcoat and loose buckskin continuations, which took a remarkable resemblance to the doublet and hose of long departed times. His hair, as we have said, was white—bleached by sun and wind, it seemed, as well as by years. His face had a hardy, resolute look, like that of one familiar with hardship and danger, but there was nothing sinister or dishonest in it; and Constance, who had sprung to her feet before she had half made these observations, felt completely reassured when he said, in a deep but kindly tone, "Is there nobody in the house but you, child?"

"Yes, sir; there are two British officers." The plain truth came always uppermost with that girl.

"Two British officers? What are their names?"

"Lieutenant Gray and Major Danby, sir."

"He that Magrory's men brought down from Cumberland Station?"

"The same, sir."

"Well, there's no harm in him; and he has got a handsome girl for his daughter," said the stranger, with a fatherly sort of smile.

"Oh, sir, I am Squire Delamere's daughter; they call him colonel now," cried Constance, in her simplicity and eagerness. "Can you tell me if he is safe, or did anything happen to him in the battle?"

"Nothing that I know of, child; but we and the British get little news of each other's happenings. Yet now that you remind me of it, I heard Colonel Archdale, just before he started to let the Philadelphia folks hear of our good fight, telling one of his militia, who, it seems, had been in the squire's employment, and was a bit concerned about him, that Delamere has gone back to Boston for reinforcements without a scratch, after all the damage he did us at the breastwork."

"Thank you, sir, for telling me that." Constance could say no more for great joy and thankfulness. Her father, and Sydney, too, were safe. Her prayers concerning them had been heard, and her fears were over for the time.

"I am glad I had to tell you, child," and the stranger's hard face grew sadly softened. "There is many a wife and daughter, sister and sweetheart, seeking for such news of their own, that lie yonder on the heights. That is the worst part of our hot dispute with England. The Lord forgive them who urged it to this issue. Your father was a worthy gentleman, and is a good soldier; I am sorry he has sided with the enemies of his country."

"I am sorry for it, too, sir, but I can't help it," said Constance.

"No, you can't, my girl, and that is well spoken, too. I have something else to say. You can't stay here, you or your friends. We are going to fortify the hill,

this house must form part of the works, and the British will very probably try to dislodge us. Get off as quickly as you can. Are you in safe hands, child?" and he looked her in the face as an anxious relative might have done.

"Oh, yes, sir; Lieutenant Gray is my father's friend, and Major Danby is a friend of his. They are both good men, and I am going with them to Watertown to stay with the major's lady till some better arrangement can be made," said Constance.

"They should have been in Watertown yesterday, with the rest of the officers on parole. Tell them to start at once, and nobody will be the wiser. As you are with them, and we have no horses for a lady's riding, I'll get somebody to lend a cart. These times don't admit of much finery, but give them my compliments, to make quick and quiet work of it. My name is Israel Putnam. Good morning; and the Lord bless you!"

He was gone the next moment, for that white-haired man retained in a great measure the activity of his youth. Constance ran to the outer door to get another sight of him. The name he had given was known to her as that of one of the several captains elected by their own troops, and commanding with independent authority each his own division of the American camp. It was known throughout the provinces, and is still known in the history of his time, as that of a veteran patriot who spent his youth in defending his country's frontiers, and his age in defending its liberties—a rustic Cincinnatus, who left his plough to serve his land and people, and merged in that service every personal consideration; and a man who, despite a rugged life and eccentric manners, was honored by his contemporaries, and is revered by their posterity. The provincials almost gave the credit of the "good fight," by which they gained a *prestige* of more account than victory, to Israel Putnam, because he had advised and carried out the fortifications on the heights above Charlestown; and his second achievement in that campaign was allowed to be the fortifying of Prospect Hill. As his custom was, he had come alone to survey the ground while friends and enemies were yet asleep, found the door of Prospect House unbarred, through the general oversight of its weary inmates, and thus interviewed Constance at that unusual hour, and gave her and her traveling companions notice to quit.

CHAPTER XXIV.—DANBY LODGE.

The political state of the American provinces in the year preceding the Declaration of Independence has scarcely its parallel in the history of any other country. While the New England troops were successfully fighting his Britannic Majesty's forces, and taking possession of his Majesty's forts and stores in every direction—while the Continental Congress were commissioning their officers, and making arrangements to increase their military resources—public men from Maine to Georgia talked of allegiance to the British crown, and indissoluble connection with the British Kingdom. Governors with royal letters patent from England, and commanders appointed by the congress in Philadelphia, came at each other's heels; the municipalities through whose territories they passed paid them equal honors, and lived in dread of their simultaneous arrivals—a contingency which would have been embarrassing, but either by good chance or good guiding, it never happened. The governors exhorted the people to repent of their disloyalty; the commanders advised them to stand fast for their rights and liberties, and the latter counsel was generally accepted; but the old colonial attachment to the mother-country, the well-spring of their laws and language, learning and religion, in whose history and traditions they had to seek the origin of their own, had still a hold on provincial hearts which it required months of relentless hostility on the part of the British Government to loose and break away.

In the meantime those contending influences produced a state of things that was remarkably diversified. Boston and its vicinity was the theatre of open war; but beyond that every district, and almost every township, did that which was right in its own eyes. While one was filled with burning zeal for the patriot cause, so that none of the Tory persuasion could find rest for the sole of his foot within its bounds, another went quietly about its business, living and letting live with regard to principles or parties. The village of Watertown belonged

to the latter description; there was not a more peaceable place on Massachusetts Bay.

Danby Lodge was an imposing title for the neat frame cottage standing in a small garden on the outskirts of the village, at which, according to observant neighbors, "two old Britishers and a handsome young miss" arrived on the day after Bunker's Hill. The time and circumstances might have excited some demonstrations of feeling, but Mrs. Major Danby received them with the most genteel composure. She looked like one of those "severe English ladies" with whom French mothers are in the habit of frightening their refractory children—tall, muscular, and gaunt in frame and face; no beauty, indeed, yet gifted with a commanding presence, and a look of good birth and breeding which beauty cannot always confer.

Further acquaintance proved that Mrs. Danby was coldly proper to the back-bone society as it existed in England being her high court of appeal for all causes temporal and spiritual; that she was inclined to stand on her social dignity, but ready to reckon pence with any tradesman; and though her highly practical views were disturbed by no gleam of sentiment or flight of imagination, yet the lady had one hobby, which was a consideration to all who came within her reach. It was the same which she had ridden with such woeful consequences at Cumberland Station, an unresting ambition to train, drill, correct, and set people right on every possible subject. If they were young, so much greater was the scope for her energy, if they were old, she could still find room for improvement.

In short, Mrs. Danby had missed her destiny in not being a charity schoolmistress, and yet was not a bad sort of woman as the world went. She seemed really glad to see her old husband safe and well; had a friendly greeting for his ancient acquaintance, Lieutenant Gray; and when Miss Delamere had been presented in due form, she gave her a kindly welcome to Danby Lodge, and a pressing invitation to make it her home till those "misguided creatures before Boston were brought to reason," and loyal gentlemen like her father could return to their mansions and estates in peace.

The invitation was gratefully acknowledged and accepted, and Constance became one of the Danby family. Lieutenant Gray found quarters for himself in a neighboring cottage, for the lodge had no room for more than one visitor. Many of the British officers similarly situated in Watertown were his old friends, most of them were acquainted with the major, and all took early opportunities to get introduced to Mrs. Danby! From the day on which the major had endowed her with his worldly goods, that excellent lady had kept fast hold of them and her own too, in times of triumph or of tribulation. Losing anything was out of the question with her. Moreover, she managed financial matters as it would be well for nations that most ministers could do; and thus her spouse had a comfortable home in the days of his involuntary captivity. Her house was a capital place for those lonely and luckless men to while away their idle time in. The seniors found cards and conversation there, the juniors a young lady to buzz and hover about.

Mrs. Danby found them all ready, if not willing, subjects for her schooling powers, and did governess duty to such an extent that Lieutenant Gray was heard by his confidential friends, though he acknowledged it was wrong, to wish the Indians had got her.

As might be expected, Constance got a large share of the tutelage. Besides being grounded in all that was required from "a girl of family in England," she had to work samplers in the rococo pattern, and learn to perform on the harpsichord such choice pieces as the "Destruction of Tyre," and the "Coronation of Cupid."

Naturally gentle, good-humored, and given to please, the yoke did not press so heavily on Delamere's daughter as it would have done on some girls, and its weight was considerably ameliorated by certain views which Mrs. Danby had in the back-ground regarding her guest.

Soon after her own instalment in the lodge, Constance observed that the major's lady received and dispatched a good many letters by the Tory runner who did postal business between the scattered Royalists of Massachusetts and their friends in New York, which city had become a surer refuge of Tories than Boston, and had, moreover, the advantage of not being beleaguered by the New England army. The subject of the corres-

pondence she neither knew nor cared to guess at. "It is about money matters, and what the British Government ought to do for the major," thought the simple girl. But from the first moment of their meeting, Constance had been puzzled by something in Mrs. Danby's look which seemed familiar to her memory. She had seen the lady before, or somebody very like her, but when or where Constance could not imagine, till one day, as Mrs. Danby was sealing one of her numerous letters at her own writing-table in a corner of the drawing-room, she happened to drop the seal, which rolled to her visitor's feet, and Constance, stooping to pick it up, saw engraved thereon the very crest which Captain Devereux used to employ on his frequent notes to her father.

"You know that crest, my dear?" said the keen-sighted lady. "Ah! and let me tell you I have a right to use it, though my father was only a commoner—Captain Gridley Bacon, second brother of Barnes Bacon, Esq., of Hogsfield Hall, County Hants. My mother was Lady Cecilia Devereux, eldest sister of the present Viscount Lavenham. Yes, my dear, it is quite true;" and Mrs. Danby endeavored to look arch. "I believe you are acquainted with my cousin—nay, don't blush"—poor Constance was only looking thunderstruck; "the best bred girl in this or any other country need not be ashamed of a preference for Cecil Talbot Devereux, heir-apparent to the Lavenham title and estate. My dear, he has not forgotten you; Cecil is not one of those fickle men whose love is cooled by absence and frozen by misfortune. No, though your prospects are not what they once were—I mean the present, of course—his heart is as true to you as the needle to the pole. Shall I tell you a secret? My cousin is in New York, and will be here soon."

Constance never knew how she looked on hearing that announcement, and, fortunately, her hostess had no time to observe, for the trusty runner gave his signal knock at the street door, and she ran out with her letter. The revelation was not more unexpected than alarming to the solitary girl. How was she to stave off the captain's suit in the house of his energetic cousin, who was manifestly bent on furthering the match with all her might? Had she known in time the meaning of that familiar look in Mrs. Danby's face, she would have endeavored to join the Quaker family in Philadelphia, notwithstanding the difficulties of the journey, or found a home in the poorest hut in the province rather than in Danby Lodge. Poor Constance had yet to learn that people never know in time the things which most concern them, and also that one dreaded evil is at times superseded by a greater, of which we had no fear.

Her principal inducement to take up her abode in Watertown was the hope of somehow or other finding means to communicate with her father, or at least get frequent intelligence of him. That hope had hitherto been fruitless; she had thought of many a scheme for the purpose, but could carry none of them into effect. Almost two months had passed away, and she had heard nothing of the squire except what Israel Putnam told her in Prospect House.

Since then General Washington had arrived from Pennsylvania and taken command of the New England army by appointment of the Continental Congress. Under his authority the discipline of the camp had become more strict and regular, and the leaguer of Boston more rigorous. It was the general's object either to force the British garrison out to an action in the open field, or oblige them to abandon the city by stress of famine, and sail away in the ships of war which still commanded the bay. The popular saying was that nobody could get out or in of Old Tremont, and the country people as well as the army applauded Washington's policy, for the provincial mind had been much embittered by the burning of Charlestown, and the destruction of some small but thriving towns along the coast, by the ships of his Britannic Majesty. How was the royalist colonel's daughter to get news of him under such circumstances? and how was Constance Delamere, situated as she was, to avoid or bring to naught the matrimonial intentions of Lord Havenham's nephew?

She was revolving in her mind plans of escape over one of the obligatory samplers on the second morning after Mrs. Danby's disclosure, when a cart, driven by a countryman whom she knew to be one of her father's

tenants—but he had on the uniform of Archdale's militia, namely, a red hunting-shirt and a black leather belt—came close up to the garden-gate, and out of it slowly and painfully crept the once strong and active Denis Dargan. The poor fellow's coat hung loose upon him; his right arm was in a sling; the shoulder above was covered with straps and bandages; and he walked with difficulty and the help of a stick. Before he had got fairly into the garden Constance was by his side. "Oh! Denis, what has happened to you?" she cried. "Lean on me, and let me help you into the house."

"No, miss, thank you; I'm not that fargone; don't be alarmed. It was a Bunker's Hill chance, you see, when we were coverin' the rethrait, which everybody says was the gallantest thing done in this campaign, though it's not for me to brag about, in course. A spent cannon-ball nearly smatched my shoulder; an' nobody knows what would have become o' me, for the boys were all flyin'—as well they might—but our colonel, Masther Sydney—I'll never get over callin' him that—got me up on his back wid one powerful lift, and niver stopped nor stayed till he had me safe in Cambridge. May it be remimbered till him here an' hereafter, amin! But, miss, it was not that I come to tell you," and Denis sat silent for a minute on the garden seat to which Constance had led him.

"What was it then, Denis?" A sudden fear fell on the girl's heart. "Is my father well?"

"He's not just well; but don't be frightened, miss," said Dargan.

"Tell me the worst at once, Denis." Her words came quick and low.

"I will, miss, for I know you're a sensible young lady, and won't give way. Your father is a prisoner in the hands of the Americans, and sore wounded, too, but likely to recover; the docthor himself told me this mornin'. But that's not the whole story. You see the squire got word in a letter that come till him by say from the Quaker's people, wherever they are, that one Greenland, a wonderfule name it is, had brought them news that you were among the Indians (in course the man didn't know that Providence had relaised you, miss), an' General Gage wanted a message tuck till Sir John Johnson, a great man in thim quarters; so your father, bein' as brave as any lion, an' wantin' to look after his little girl, undhertuck the business, wid only three to bear him company. They were volunteers, I was told. Becaise the sarvice was desperate, the general would bid nobody go, an' the squire led them out safe past sentinels an' batheries, till the end o' the camp at Roxborough. There the Americans got sight an' fell on them; it was numbers agin a few; but the squire fought like the ould boy—I main like Hector in the wars o' Throy, miss. One of his men was shot, an' the other two run away, bad luck to them! but he set his back agin a wall that was convanient, an' did such tarrible work wid his sword, that sorra a one o' them durst come near him till some spalpeen shot him in the chist wid his pistol. Then the noble gintleman, seein' he could fight no more, and must be tuck prisoner, pulls out the letter he was intrusted wid, an' before they could get hould of it, tears it all to bits and scatters them about; but, nevertheless, they gathered up the bits, and made out o' them that he was goin' to set the red haithen savages on to waste an' burn their frontier towns and settlements. In course it's false, every word; but the holy saints and the twelve apostles wouldn't get it out o' their heads, General Washington an' all, an' they have him in Concord jail undher a strong guard, an' talk of sindin' him, as soon as he can be moved, to Ticonderoga for safe keepin'. It's a dhreary, wathery place on that big lake, miss, an' will do the squire no good, so the docthor said to me this mornin'; he's a very sinsible man—was at college wid the squire, it seems—an' don't believe a word o' the story agin him. 'Denis,' says he, 'he might live longer than any of us, but his lungs are affected, for the shot has touched them, an' if they sind him to that forthress he'll niver come out of it, that's my opinion;' and the faithful fellow drew his hand across his eyes. "I was in the hospital, miss, when it all happened," he resumed, in a minute or two, "an' heard nothin' about it till three days ago, when Captain Magrory, an' some men of his company who had been in Roxborough, came to see me, an' bein' troubled in my mind, I got Robin Magee there—we were always friendly, becaise, you see, his grand-



SPRING—GATHERING VIOLETS.

father came from Ballymacarrot—to fetch me here in the cart, for he knewed where you were to be heard of, and I thought that if you could get some nait spaking gittleman that had the rights o' the story to lay it straiht before General Washington, he might see that the squire was blamed in the wrong, an' deal more marcfically wid him."

"I will go and speak to General Washington, myself," said Constance, looking bravely up, though her cheeks were pale and her eyes wet with tears. "Nobody knows my father's mind and motives better than I do. It was for my sake he got into this sad state and false accusation, and I will go anywhere, or speak to anybody, on his behalf."

A group had gathered round them by this time, consisting of Lieutenant Gray—who had dropped in as usual—the major, and Mrs. Danby. "My dear!" cried the schooling lady, "don't talk of such a thing; a girl of your family and appearance going to a camp of rebels to speak to their so-called general! The idea is not to be entertained for a moment."

"Axin' your ladyship's pardon," said poor Denis, "there's no danger before any lady in the American camp. It's not cursin' an' swearin', or doin' worse, maybe, like the king's sodgers they have in hand there, but behavin' themselves all the week, an' readin' their Bibles on Sunday. Miss Delamere would be as safe among the dacent min at Cambridge as iver she was in her father's house at the Elms; an' as for the general, there's not a bigger Christian in all New England!"

"You are right, my lad," said the lieutenant; "there is no danger; and in my mind, Miss Delamere would be the very best advocate her father could have with a soldier and gentleman like George Washington, for such I know him to be, though he commands against the king. Keep up your heart, my girl; you will get the squire out of his fix if anybody can, and I'll be your escort to headquarters in spite of our orders not to leave Watertown, if they send me to Northampton jail for it among the other gentlemen who have to pay for old Gage's dealings with American officers in Boston."

"I say it is entirely against the rules of propriety," cried Mrs. Danby, but as she spoke they heard the clatter of horses' hoofs on the quiet street, and Captain Devereux, followed by his negro servant, Paul, alighted at the garden gate.

CHAPTER XXV.—A MEMORABLE INTERVIEW.

Most people have their times of appearing to advantage, and this was one of them with Captain Devereux. Well dressed, distinguished-looking, and in high-feather, as he used to come to the Elms, he came to Danby Lodge; but his first sight of the group in the garden showed him that something serious had happened, and his greetings were accordingly subdued and grave. Constance had seen him last under peculiar circumstances—to wit, being removed from her father's house by the Green Mountain Boys; but the news brought by Denis had banished every other recollection, and Mrs. Danby lost no time in making her cousin acquainted with it. The oldest and most sincere friend could not have expressed more concern for the squire, or sympathy with his daughter, than Devereux did. "If I had got but a whisper of the occurrence," he said, "instead of coming overland from New York, I should have gone to Boston by sea, and used all my influence with General Gage to make him send a dispatch to that man Washington, distinctly denying the charge against my friend Delamere, which, indeed, involves himself."

"Excuse me, captain," said Lieutenant Gray; "that might have been a friend's duty; but I doubt if it would serve the purpose; Gage has denied so many things which they know to be true, that neither Washington nor one of his army would believe him; but the young lady here, who has just escaped from the Indians, can show a good and sufficient reason for her father's intended journey to their settlement, and his attempt to secure the influence of Sir John Johnson in his favor."

"Cecil, don't you think it would be highly improper for Miss Delamere to venture on taking such a step?" said the major's lady.

Devereux knew the character of the New England troops well enough to be sure that there was no venture in the case. The high moral and religious tone of Washington's army before Boston was known throughout the American provinces, and is still vouched for by

contemporary correspondence. Yet he made no reply, but seemed to hesitate about something, till Dargan said to Constance, "If our colonel, Master Sydney, was to the fore, miss, it's himself that would befrind you and stand up for the squire; but he's gone on a deputation"—a deputation the honest fellow meant—"till the Continental Congress consarnin' ammunition; shure it was the want of it that proved our overthrow at Bunker's Hill."

"A lady like Miss Delamere can never want friends," said the captain. That simple speech had turned the scale. "I admire her noble resolution to plead her father's cause before the rebel chief; not even a rebel's heart could be proof against the pleading of such lips; and I trust she will allow me the honor of being her escort to his quarters."

"Thank you, captain; it is very kind of you," said Constance; "for I am determined to go at once;" but she took an opportunity afterwards to whisper to Lieutenant Gray, "You will keep your promise and go with me, too?" and the gallant old officer responded, "That I will, my girl."

Her private impressions of Devereux had never been in his favor; neither prudence nor civility would permit the refusal of his escort; but she preferred that of the honest lieutenant. Yet Constance acknowledged to herself that the captain's behavior in that day of trouble was sensible, kindly, and engaging beyond his wont in happier times. He assisted Denis into the house to get rest and refreshment, while the militiaman went to see a friend of his in the neighborhood.

He prevented Mrs. Danby from lecturing Denis on the great sin of fighting against King George, which she was quite prepared to do, by saying, "My dear cousin, we have other matters to think of, and this is not a time to enter on such subjects."

He made no opposition to Lieutenant Gray being of the party, though the risk the latter must thereby run might have furnished him with an excuse; neither did he appear to think of any risk in his own case from the recognition of the Green Mountain Boys. Indeed, the three were not likely to attract hostile attention; there was not a scrap of uniform of British wear among them. The captain wore a civilian's dress, similar to that in which Constance had first seen him on the road below Mount Holyoke. The lieutenant might have passed for a countryman. The girl whose brocades and laces had roused the wrath of so many ladies on the banks of the Connecticut, was now clad in the plainest of homespun, with no ornament but that of her own rare and distinguished beauty. A country car, which ran between Watertown and Cambridge, accommodated her and the lieutenant. Devereux rode his own horse, and left his negro servant behind by way of making a less imposing appearance.

In the peaceful years of the land, when Boston was full of bustle and business, the adjacent town of Cambridge, though far below its present proportions, was a place of learned leisure and genteel retirement. Emigrants of good descent and education who settled there in the colonising time had given it the name of their *alma-mater* in the old country. It was the university town of Massachusetts, where letters, science, and art were cultivated to a degree not yet attained in any other part of the American continent. The amenities of social life were not less cultivated there; on every side of the town rose stately mansions, the homes of rich landed proprietors, whose families lived in such good neighborhood that they were accustomed to assemble and make merry at each other's houses, by turns, the year round.

Now, the central division of the New England army was encamped at Cambridge. The college was closed, for professors and students had alike deserted its classrooms for their country's service. The rich proprietors, being royalists to a man, had fled for refuge to Boston or New York. The Congress had confiscated their mansions; those fair and pleasant homes were turned to military uses; and one of them, which still stands where the Watertown road leads into Cambridge, was the headquarters of General Washington.

At a short distance from that house stood a road-side inn, where a widow and her two boys carried on business, undisturbed by the vicinity of the sober camp. There the car left its passengers, and the captain his horse, while the small company proceeded on foot. They were now within the American lines; rows of

white tents covered the fields around them, and stretched along the outskirts of the town; men, seemingly without number, sat in groups under their shadow, or that of convenient trees and hedgerows, for the quiet of the summer afternoon had fallen on country and camp.

Many looked at, but none challenged the strangers, it was on Boston and the bay that the New England men kept watch; the landward side was all their own, and therefore unguarded, that country friends and kinsfolk might be free to come and go. Their progress met with no interruption till, as they turned towards the entrance of the mansion, the lieutenant said to Constance, "A friend of mine here—he is a freemason, like myself, and was formerly in my regiment, but 'sloped,' as they say—has just given me a sign that I had better keep out of sight; so, by your leave, I'll wait here;" and with the instinct of an old soldier, he took up his position, snuff-box in hand, in the shade of a wild vine that hung over the lawn fence in a leafy curtain, through which the lieutenant could see without being seen.

The captain made no observation, he had become unaccountably silent since they entered the camp, and walked by his companion's side without looking to right or left. Constance passed on; her beautiful face and downcast eyes, shaded by the broad brim of her rustic hat, and her mind so absorbed by what she should say to the general on her father's behalf, that she did not see two gentlemen who had just arrived and stood under a tree opposite the mansion gate, each holding the bridle of his horse as if waiting there for friends or attendants.

A sudden exclamation from one of them made her look up—it was in French, and only half heard, but the mingled horror and astonishment expressed by the stranger's face caught her attention even at that moment, and what was her own amazement to find that Captain Devereux had disappeared from her side, and was nowhere to be seen. There was no time to wonder or wait for him; the single sentinel at the gate, who had been one of her father's tenants, and probably guessed her business, opened it before her. She must face the general alone, but Constance would have faced a dragon for her father's sake. There was another sentinel at the front door; he was one of Captain Magrory's men, and made way for her as the door stood open. All was quiet within; there were no lounging attendants, no passing orderlies, and Constance could see nobody; till, on entering a room on the ground floor, to which she thought the sentinel had pointed, an officer in a neat undress looked up from a small table at which he was writing. That officer could not be described as either young or old; he was a man in the early noon of life, more robust than handsome, with a quiet, serious look, and yet of a commanding presence. At the first sight of Constance he seemed slightly startled, and before she had time to speak, said, "Is your name Lee?"

The question appeared to spring from a sudden impulse; but as the girl answered, "No, sir; my name is Constance Delamere, and I have come here to speak with General Washington, if possible; will you be good enough to tell me where I can find him?" his startled look changed to one that was almost stern.

"You are speaking to General Washington, young lady," he said. "What is your business with me?"

Constance did not know that, like many a winner and wearer of the laurel, the commander-in-chief of the New England army had been in his early youth disappointed in an attempt on the myrtle by a Virginian girl, who married a much less notable man named Lee, and had then grown-up sons and daughters.

"It is, General," she answered, with a respectful curtsy and as much composure as it was in her power to preserve, "to appeal to your justice and generosity on behalf of my father, who is now a prisoner in your hands, and falsely accused of an intention to stir up the Mohawks, and other Indian tribes, against the people of this province."

"How can you prove that the accusation is false, young lady?" His severe and penetrating glance almost unnerved her; but her father's cause was at stake.

"I can prove that Colonel Delamere was bound for the Indian country to search for his only child—my unlucky self," she said; and proceeded with a brief statement of her own and her fellow-travelers' captivity among the Wampanoags, her unlooked-for escape, her inability to communicate with her father, and his conse-

quent belief in the intelligence of her being a captive still.

The general listened calmly, but his stern look never altered as he said, "I have no doubt that your tale is true; but the man who went to search for his daughter among the Indians also carried a letter from General Gage to Sir John Johnson, whose motives and intentions we have good reason to suspect. Miss Delamere, I respect the courage and affection which have brought you thus alone to plead your father's cause with me; but the duty I owe to my country, to its cause, and I may say the cause of humanity, will not permit me to overlook the atrocious attempt to let savage tribes, with all their cruel instincts, loose upon our frontier towns and villages."

"General," said Constance, and the spirit of her race flashed in her eye and cheek, "my father never had such an intention. I have heard him, both in private and in public, denounce the employment of Indians in the French war, in which you know he served with honor, as a monstrous iniquity, disgraceful alike to Christianity and civilization; and I am sure he would be the bearer of no despatch on such a subject for General Gage or anybody else."

"Why, then, did he tear it in fragments, young lady?" and the stern face relaxed; but it was with a smile of scorn.

"Because my father would not suffer the private letter, with which he was entrusted by a friend, to fall into the hands of his enemies." But as Constance spoke, somebody entered behind her, and the next moment General Washington was shaking hands with Mr. Archdale.

It was known throughout the provinces that a political friendship at least existed between the general and the Massachusetts delegate.

Unwarped by personal ambition or provincial prejudice, Archdale's clear and calm judgment found in the Virginian officer, whom some of his countrymen were disposed to undervalue because not of New England birth, the fittest man to command the patriot army; and it was said his speech had turned the scale in Washington's favor when the question of the appointment was debated in Congress.

His entrance brought a doubtful hope to Constance. Could he be induced to use his influence for her father's help? Would he remember the early friendship, or only the later quarrel? But her mind was soon relieved.

"Constance, my girl," said Archdale, taking her by both hands in the old familiar fashion, "you have had more than your own share of troubles and trials since I saw you last; the young meet with them in these times as well as the old; but you and I have met here on one errand. General," he continued, turning to the commander-in-chief, "you will excuse my want of ceremony, but having seen Miss Delamere come to your quarters, and guessing on what business, I thought it my duty to let you know that the young lady had a claim on your consideration of which you might not be aware. My friend Dr. Joseph Warren, whose fall at Bunker Hill his country laments with me, could find no available messenger when General Gage had shut up Boston Gates, but this young lady having permission to pass out with her friends, conveyed his letter to the proper hands at her own risk and peril, and thus saved our stores at Concord and our patriots at Lexington."

"It was a piece of good service done to your country, my girl." The stern look had passed from the general's face, and he smiled kindly on her now.

"Set it down to my father's account, it will help to balance the charge against him," said Constance. "Mr. Archdale, you can say, from years of intimate acquaintance with him, if such a charge could be true."

"I am persuaded it is not; the whole affair is a mistake, arising from circumstantial evidence, which is never to be entirely trusted. I could pledge my life and fortune for Delamere, that he would not be a party to any transaction of the kind. For justice sake, General, get me a safe conduct, and I will go to Boston and try to get the truth out of Gage."

"You would have a difficult task, Mr. Archdale," said Washington, "but the case shall be carefully investigated; fortuitous circumstances have made innocent men appear guilty before now; in the meantime, Miss Delamere, have no fears for your father."

"Let me go to him, General," said poor Constance,

"he has no child on earth but me, and none of his relations care for him now. Let me go; I am sure I could be of use to him. I will give no trouble to any of your people, and put up with any place so as I can stay with my father."

"You shall go, and stay. I will write an order to that effect directly; in the midst of ill-luck and worse guiding, Providence has been kind to Delamere in giving him such a daughter." Was it the remembrance of his step-daughter, Mary Curtis, and her early death, that made the general draw a half-sigh as he spoke? But in a minute or two more he had written his commands to the Governor of Concord jail on a slip of paper, which he handed to Constance, saying, "There, my girl, go and see your father."

That slip of paper is still preserved by the descendants of Constance Delamere as one of their family heirlooms, and a fair and fitting memorial of the great man who wrote that kindly order while yet on the threshold of his fame. "I cannot thank you sufficiently for this, General, but I will remember you in my prayers;" and the unlucky squire's daughter dashed away some tears that would have fallen.

"Do so, Miss Delamere; there is no safeguard for a soldier or a man like the prayer of a good and pious woman," said Washington.

"Well spoken, General, and better done. I regard this order of yours as a personal favor. Come, Constance," and Archdale drew her arm within his, "I will see you safe on your way to Concord."

As they emerged from the general's quarters, Lieutenant Gray came out of his covert to meet them, his honest heart rejoiced at the success of Miss Delamere's mission. "Keep up your heart, my girl," he said; "things will be all right with you and your father yet; but since you are in safe hands, I must get back to Watertown and tell Mrs. Danby. By the way, I will tell her how her precious cousin acted. She is the right woman to take him to task."

Mr. Archdale waited till the Lieutenant was out of hearing, and then said, "Constance, I cannot go with you to Concord, I have important business to transact with General Washington; however, there is a friend of Jacob Stoughton, a good trusty Quaker, who lives there, and has been here to see his three sons; they were not of his opinion, and would take up arms; he is setting out for home in half an hour, and will take you with him as kindly as I could do; but before we part, tell me, do you wish to wait for the captain, or can you guess why he left you?"

"I cannot, Mr. Archdale, and I don't want to wait for him," said Constance.

"Well, then, listen. You saw two gentlemen standing with their horses under the opposite trees as you were about to enter the general's gate. One of them was my colleague in this mission of mine, and the other was Count de Valencourt, a French nobleman who, like many of his generous people, has fallen in love with liberty, and crossed the Atlantic to fight for her and us. He has served with distinction in his country's army, and is a man of earnest and steadfast mind, unlike the volatile character which we English-speaking men are apt to impute to his nationality. This I can vouch for, though the count is more intimate with my son Sydney than with me; their minds come nearer, notwithstanding the difference of their years. I was further in the shade when you and the captain passed. Perhaps you did not see me, but I saw de Valencourt looking your way, and thought it was your face that took the Frenchman's eye, but when I caught sight of his, it told me a different tale, and at the same moment the captain darted away down yonder lane between the high hedges. You entered the general's gate, and I was about to follow, when the count stopped me, and said in an undertone, 'Do you know that gentleman who has just left the lady, or can you tell me his name?' I told him as far as I knew, which happens to be little, about the captain. 'Devereux,' he said, 'the nephew of an English peer? Did he ever go by any other name, or was he brought up in the West Indies?' 'Not to my knowledge, but you must remember he is a stranger to me,' I said. 'Well, his face is not strange to my memory; it cannot be the same, but never did I see one so like that of a man whom I have grievous cause to recollect, and for whom I have sought over Europe in vain. You will pardon my questions, Monsieur Archdale, and I commit

'he subject to your discretion,' said the count. I told him it was safe with me, but I tell the story to you now, Constance, and I ask you to tell it to your father, that is when he is strong, and fit to converse about such matters; and will tell him also what I cannot in person, lest it would seem intruding on his days of misfortune, that Ralph Archdale is as truly his friend now as when he mounted the breach by his side at Fort Duquesne?"

The old gaol of Concord was built in times when "witches and sorcerers, Quakers and Anabaptists," were expected to be among its inmates; and its cells, low, damp, and almost dark, were characteristic of the penal arrangements of that period. In one of them, the most comfortable and best furnished within the prison walls, beside a low bed, screened by a coarse curtain, where a solitary candle flared and flickered as the night breeze crept in through a small, grated window near the ceiling, Constance Delamere sat late in the evening of the same day in which she had the interview with General Washington. In compliance with the general's orders, the prison authorities had not only admitted her, but made every possible arrangement for her accommodation. She had spoken with Dr. Adams, a wise, good man, as well befits his profession, and a member of the family so highly distinguished in the Revolution and subsequent history of the United States. He had been her father's class-fellow at Harvard College, and from a kindly remembrance of that early acquaintance, did his best to serve Delamere professionally and otherwise. His report was much the same as that which Dargan had given her; there was no immediate danger, but under the most favorable circumstances it would be a long time before her father was the man he had been, and he warned her that in rest and quiet was the only hope for him now.

She had stolen in and got the first look of him asleep on his prison bed. How pale and pinched his face looked, how the furrows seemed to have deepened in his brow, and the gray thickened in his hair, since she saw him last. They left her there alone, and she sat down by the bedside and wept sore and silently; but the girl was spent, sleep came upon her in the midst of her sorrow, and, with the tears yet upon her cheeks, she leaned back in her chair and forgot for some time the troubles and trials that beset her young life.

CHAPTER XXVI.—GATHERED AGAIN.

The sound of her own name woke her up suddenly; it was to see her father holding back the curtain with one hand, while he partially raised himself in bed with the other, and gazed on her with a look so strange that she felt almost frightened. "Dear father, it is I come to stay with you," she said, rising and throwing her arms about his neck—the doctor had told her that Delamere was now aware of her safe return to civilized territories.

"God be praised, it is you, my child! But you looked so like her sitting there, that for the first moment I thought it was your mother come back to see me in my lonely latter days;" and he kissed and clasped her with the old unchanged affection.

"Dear father," said Constance, "it was through me that you got into this sad state; that is the only thing that grieves me, for I know things will be well with us yet."

"No, child; it was through misfortune. I am not what is called a lucky man—maybe I am not of the materials that lucky men are made from. But since you have come back to me safe and well, I care for nothing—except the black charge they have got up against me from the fragments of Gage's letter; but I have prayed to the Searcher of hearts that my innocence in that matter might be made clear, and I have a hope that my prayer will be granted," said Delamere.

His fortitude under suffering and misfortune was as great as his courage in the battle-field, and his daughter had the same spirit. "I am sure it will, father," she said, "For the Lord is just. Let us trust in Him, and all will be well with us yet. But I must not talk too much; let me read to you, father."

"Do, child; read some of the old psalms in my own Bible there, it is all the property I have now," and he pointed to the familiar volume on a shelf hard by."

Constance read to him psalm after psalm, till he fell asleep again, with his hand clasping hers. But from that hour Delamere's recovery, though slow, was certain. Dr. Adams said it was owing in a great measure

to the cheering and helpful company of his daughter, and well the doctor might think so. Constance exerted herself as woman, young or old, under the impulse of strong affection will, to brighten up and comfort her father's days of being sick and in prison. She read to him, she sang to him, she did kindly offices within and errands without their gloomy residence, for her steps were free to come and go, and the worst of the "jail birds," as the other inhabitants were designated, showed her that respect and deference which discreet and dutiful conduct commands in almost any society. As Delamere's recovery progressed, she entertained him with her adventures and difficulties among the Wampanoags, old Red-hand's scheme for her settlement in life, and Kashutan's courtship, not forgetting how her escape had been brought about by the cunning of her treacherous rival, Osuna.

"Ah! Constance," the squire would say, while he wondered and laughed over the narrative, "that face of yours has been a cause of confusion to men, both red and white, and of peril to yourself, my girl. Thanks be to Him who brought you safe out of the hands of the savage tribe and the wilds of the pathless wilderness!"

Constance did not yet think it wise to tell him of the incident at Washington's headquarters—the captain's strange conduct, and Archdale's tale regarding it—though her own mind often reverted to the subject, without being able to guess at an explanation. Devereux she neither saw nor heard of; perhaps the constant communication between the American camp and Concord might be the cause of his non-appearance, if he had anybody in the former quarter to fear; but Lieutenant Gray, in a stolen visit he made to inquire how things went with them in the uncoveted home, told her that the captain had not appeared in Watertown either; and his cousin, after waiting for him in much the same spirit that the squaws waited for her in the Indian village, transferred her indignation to Constance for having so far forgotten the rules of propriety as to enter the gate of a common jail on any pretext whatever.

In the meantime, better news reached the squire and his daughter. Mr. Archdale obtained a safe conduct, proceeded to Boston, and received from General Gage a statement under his own hand, that Delamere's journey to the Indian country had nothing to do with the design suspected, and that the letter he had torn from an impulse of honor over nice was a private one, regarding some land within Sir John Johnson's grant, on which the general had a claim that he naturally wished to settle before his recall to England, which was then pending. Officers of high character and rank, both in the British garrison and the American camp, came forward as voluntary witnesses for the accused colonel; in short, like many a hasty condemnation, when men's minds get cool and quiet enough to sift the matter, the public sentence against Delamere was reversed. The commander-in-chief wrote to inform him of the fact, with courteous expressions of regret that circumstances over which neither party had the least control should have placed a man of undoubted worth and honor in so false a light; and gave liberal permission to reside where he pleased within the territories of the Continental Congress simply on his parole.

"That is handsome of Washington, after all the rebels and worse I have called him in my time," said Delamere. "Between ourselves, Constance, I doubt if I was not wrong in going so far against my countrymen; but nobody but my own girl shall hear me say so now. The old Tory repents when the luck has gone against him—that is what the Massachusetts people would say; and I won't stay in the province a day longer than I can help it, to be made a 'use of warning' by all their preachers and prophets, from Livingstone down to Hiram Hardhead. In the meantime we must get out of this place; I don't much regard it myself; it is not the prison, but the cause of his being there, that should trouble a man; but it is sad quarters for you, child."

They removed accordingly to quiet, respectable lodgings, which Dr. Adams found for them, till the squire should be strong enough to travel farther and find a location more to his mind than the Whiggish town of Concord. They had not been long settled there, when, going forth one morning on some domestic errands to a store near the Lexington road, Constance saw coming on to meet her, with something like the stalwart step of former times, the faithful Denis Dargan. A good con-

stitution and a temperate life had stood the young man's friends; he was almost himself again, and came forward with, "Miss Constance, darlin', I was comin' to see you secretly in a manner, thinkin' it would be agin the squire's mind to hear tell of me at all, because I'm on the American side. Praise and thanks that his good intentions is made as clear as the sun, an' that I'm growin' as strong as a bullock; howsomever, they have given me leave of absence to see my ould frinds about the Elms and the Plantation, and stay wid thim that makes me most welcome for a while; then if I'm able to do my duty as a soddier, I'll come back to Masther Sydney's regiment, an' help to thurn the Britishers clane out o' Boston."

They stood and talked for a few minutes, with kind inquiries and good wishes on both sides. Constance sent friendly messages to the old servants of the family, including the steadfast-minded maid, Martha, whom Dargan hinted he was sure to see; though the Elms was in strangers' hands, they all lived in its neighborhood still. Denis prayed over and over again "that every blissin' might attend her and the squire; but there's Robin Magee screechin' for me," he added, as a voice of no ordinary power pealed over the quiet road. "I'm goin' home wid him, you see; Masther Sydney'll write to me when he comes back from the depredation. Oh, isn't he the consarned man about all that has happened! Comin', Robin, comin'; farewell, Miss Constance, darlin';" and, with a kindly shake-hands, the ex-best man sped away to his impatient friend.

Constance hastened homeward. She did not care to leave her father long alone in his present state; but when scarcely half way, it seemed that somebody was running after her. The cry of "Miss Constance!" made her turn quickly, and it was to grasp the two outstretched hands of her faithful page, Philip.

"I thought I should never see you again; but here I am at last," he cried, out of breath with running, but ready to dance for joy. "Hannah Armstrong is coming up with a friend of Mr. Stoughton's, who lives here. He says he brought you home to the squire, and he was bringing us too, but I got a glimpse of you parting with Dargan, and started off to come up with you first."

"Oh, Philip, how glad I am—how glad my father will be to see you and Hannah, though things are far changed with us," said Constance; "but how did you get away from the Indians? I had terrible fears of what might happen to you all when they missed me."

"Well, Miss Constance, we should have been in a pickle"—and Philip took the marketing-basket off her arm, placed it on his own, and marched on by her side, in the fashion of former times—"but it was all made out. A hunter of Kashutan's tribe saw, from one of the high hill-tops, Osuna leaving you on the bank of the stream, and another brought word next morning that you had gone with the Massachusetts men who took Cumberland station. That set our hearts at rest, and saved our skins too. Old Red-hand has a sort of justice in him, and said directly we were not to blame. I don't know what he would have done to Osuna, but she fled in time, nobody knew where. However, he held a palaver round the council-fire the same evening, and condemned her never to get a husband, which, it seems, is the greatest punishment for Indian ladies who can't be got at with the tomahawk; but Kashutan! oh, Miss Constance, wasn't he wild! He said nothing, in the Indian manner, but I thought his looks would have burned the village, and I kept well out of his sight till we were released."

"How did that happen, Philip?"

"Well, you see, Greenland carried the news of where we were to them in Philadelphia; and Mr. Sewell, knowing he could do nothing for us himself, spoke to Colonel Archdale, who was there at the time. Mr. Sydney, you know, he is a great man now, and got the Congress to send a deputation, and him at the head of it, to get us out of the clutches of the Indians, and gain them over not to side with the Britishers, but stay at peace in their own country. I don't think Mr. Sydney got that done to his mind; but they made him wonderful welcome. Old Red-hand released us all at the first asking, and Kashutan made a grand feast. I think he would have made something else for Mr. Sydney, if he had known what had been between him and you."

"That is all over, Philip."

"Not with Mr. Sydney, miss? He took me aside and questioned me so particularly how you looked, how the Indians behaved to you, and if ever you spoke of him. Oh, wasn't he the disappointed man when I said no! He loves you in the bottom of his heart, Miss Constance; but I would rather have Kashutan, he's a fine man, and a dead shot, and gave me so many nice things," said Philip. "Howsoever, Mr. Sydney got us released; and glad enough we were to say good-bye to the Indians.* Mr. Stoughton went back with him and the deputation to Philadelphia, and Hannah and I, knowing in what direction you went, came down to Cambridge with Mr. Sewell. He says he is going to fight for the right of the land in Washington's army; but when we got there we heard all about the squire's misfortune. Weren't we both sorry that the like should happen! But I persuaded Hannah it was best to go to him and you at once, and here she comes."

They had reached the door of Delamere's lodgings by this time. As Philip spoke a wagon drove up to it; out of the wagon stepped Hannah Armstrong, and it would have been difficult to say which of the four was most rejoiced at the meeting which took place the next moment in the parlor within.

"I magnify the goodness of Providence, who hath given me to see thy face again, friend Delamere," said the worthy Quakeress, when the first greetings were over.

"His goodness is always beyond our deservings, Hannah. I, also, am thankful to see you safe and well; but mine is a poor place for you now," said the squire.

"Friend, it was not for thy place, but for thine own and thy daughter's sake, and chiefly in hopes of being of some service to thee, that I came so far to seek thee out," said Hannah. "Worldly things short of actual want, which for many reasons thou needest not fear, should cost a Christian little thought. They come and go with the chances of time, and fall equally to the share of the good or the evil. I have made some savings in thy service, which, if need be, I hope thou wilt do me the great favor to consider as thy own."

CHAPTER XXVII.—THE BEGINNING OF THE END.

While Boston was garrisoned by British troops, and beleaguered by New England men, while the bridges of New York were one week thronged by the inhabitants of Whiggish proclivities, flying from an expected invasion of King George's forces, and the next with Tory refugees in dread of a provincial insurrection, the City of Philadelphia remained in peace and quiet, as if the spirit of its Quaker founders had become the genius of the place. The business of the Revolution was done there without disturbance or demonstration. The Continental Congress, an assembly of delegates from every American province, to whom their countrymen had entrusted the destinies of the land, civil and military, and among whom there were names that are famous to all time, sat in the old court-house, with doors closed against the public, kept up a constant correspondence with the camp before Boston, and opened their deliberations every morning with prayer by some esteemed minister of the town, whatever might be his church or denomination. Men seemed to think more calmly and soberly there than in other towns; disputes were seldom heard of; but the great majority of the citizens were staunch Whigs, and though an influx of the Tory persuasion had lately taken place, they were chiefly of the subdued order—families who came for peace and safety's sake, or men who somehow had had enough of standing up for King George and his Parliament.

*The remnant of the Six Nations, who occupied the greater part of the State of New York at the time of this tale and among them powerful Ojibeways and the once-dreaded tribe of Mohawks, are now settled on reserved lands on the British side of Lake Ontario. Many have adopted the habits of civilized life; many have also received the truths of the Gospel; and schools and churches are rising in their villages; and the hereditary chief of the Ojibeways, whose Indian name was "hunder Cloud hunter (Pantahquahong), is now known as the Rev. Henry Chase, a Christian minister and missionary among his nation.

Their neighbors were at a loss under which division to reckon the inmates of a small but comfortable looking wooden house with flower-beds enclosed by a green paling in front, and with a vegetable garden in the rear, standing at the end of Chestnut street, where cornfields and meadows occupied the level land between the rivers, Schuylkill and Delaware, which the city has long since covered in its growth of a hundred years.

In that house resided Squire or Colonel Delamere and his daughter, Philip, Hannah Armstrong, a negro girl hired by way of help—and in the intervals of peddling, Hannah's second husband, Green Crossland—for the courtship begun in the blockhouse of the wild valley had properly culminated in a marriage celebrated after the fashion of the Society of Friends.

It was a humble home compared with the family mansion at the Elms, but it suited Delamere's altered fortunes. "We are poor folks, and must not be particular now," he said. Poor, indeed, they would have been, but the Continental Congress, chiefly through the representations which Mr. Archdale made without his knowledge, allowed him an income out of his confiscated estate, small, but sufficient to ward off want or dependence, and they were things equally dreaded by the squire. He had chosen to remove thus far from his own New England because it seemed easier to spend his invalid, impoverished days where reflecting neighbors could not comment on the fact that pride had got a fall. Strangership is rather an advantage in times of reduction; nobody in their vicinity knew the Delameres except Jacob Stoughton and his family; and they were now gathered together again, all but Caleb Sewell, and living in a pleasant place called "Vinelands," about a mile and a half from the small wooden house. Their friendship for the Delameres took no chill from misfortune. Had the squire been on the height of his worldly prosperity and military promotion they could not have interested themselves more about his settlement at Philadelphia.

Susanna had the warmest welcome of all for Constance; yet at their first meeting it was evident that the removal to Pennsylvania had done all that was expected from it for her; the slender frame had grown thinner, the statuesque face more colorless and wan, and there was a perceptible increase of the weary look in her soft blue eyes.

They met with the friendship of their Boston days, but could not be so much together now. Susanna could venture out only in fine weather, and Constance would not leave her father to fret alone. His occupation, civil and military, was gone; the weather concerned him as much as it did Susanna now. He had no friend to visit him except Jacob Stoughton, who, knowing he was the only one, made it a point to drop in almost every day; and it was wonderful what cheer and solace the once hot-brained squire found in the converse of the sober Quaker.

Laid aside from the pursuits of active life, with much time and more cause for thought and reflection, Delamere was growing a wiser man and a less zealous partisan. He had settled in the outskirts of Philadelphia at the beginning of Winter, and as it wore away, and the Spring of another year came on, great changes took place in public affairs. The British troops had been driven out of Boston to the ships, in which they sailed away with a following of fifteen hundred Tories. Washington and his New England army took possession of New York; flourishing towns and thriving ports along the Atlantic coast were destroyed by British cruisers and privateers, and people were everywhere heard to say that a total separation from England was the only course left to the American provinces.

How would such sayings have stirred up Delamere's wrath but one short year ago, yet now he discussed them and the circumstances which occasioned them so calmly that honest Jacob, who valued the blessing of the peacemakers more than the success of political parties, began to think of effecting a reconciliation between him and Archdale; but that was to be brought about in a different manner, and the Stoughton's had a subject of sad concern at home. The balance-weight of their prosperous fortunes and domes-

tic tranquility was to see the young branch of their wedded life withering before their age. The fatal foe of their race, which had followed the English colonists to the western shore of the Atlantic, insidious, deceitful consumption, had fixed on their only child with its usual alternations of recovery and relapse, which make friends and kindred hope to the last. They that die early escape much; we know it by looking back on the years of our own journey since the grave-grass grew between us and them. Yet there is no mourning like that for the death of the young; their memory is blessed, but our hopes die with them, and with some our hearts die also.

The weather was fine, for the glorious Summer of Pennsylvania had come, and the bloom of the year brightened all the land; but Susanna could not venture out, she had caught a cold, her mother thought, and Constance went to see her one afternoon, promising to return at the evening's fall, the time when her father would miss her most. She found the young Quakeress shut up in her own comfortable room, where the sun shone in with softened ray through a double screen of flowers and curtains, while all the neighbors sat with open doors and windows, but Susanna received her with the old smile of welcome. "It is very kind of thee," she said, "to come and see me this afternoon, for my mother had to attend a meeting of our society, and I was beginning to feel dull and lonely."

They sat and talked as they used to do in Harbor street, when Susanna marked the linen; now her pale, thin hands lay idle on her lap, and the book she had grown tired of reading lay before her on the table. "Tell me, Constance," she said, after kind inquiries for the Squire, for Hannah, for Phillip, and for Greenland, with whom she had got acquainted since his coming to Philadelphia, "dost thou know if Sydney Archdale will soon come here again? he comes and goes, as he told us himself, on business between General Washington and the Congress, but he has not been here since the time he went to the Indian country and released my father; and now that the army is in New York, which is so much nearer than Boston, I thought we should see him oftener."

"I can tell you nothing about him," said Constance; "it is a long time since he gave up visiting us, and we are scarcely worth visiting now, I suppose; but you should know most about his comings and goings, Susanna. I heard in Massachusetts that you and Sydney were engaged;" and she looked steadfastly down on the carpet.

"Then, Constance, you heard what was not true; and somehow my mind told me you had heard the like, because of his comings to our house; that was why I spoke to you of him, Constance dear, to let you know the truth and leave no shadow on your heart when I am gone. Sydney Archdale saved my life, and always acted like a friend to me and my family, but he never spoke of love or marriage; he never cared for me in that way, Constance; and now I am glad he did not. The love of a true, brave man like him might have made me fall away from our society, and so grieve my father and mother. We have reason to pray, 'Lead us not into temptation,' and, in great mercy, I have not been led. More than that, Constance, it might have made me cling to the earth and be unwilling to go. Now, when my Father above is calling me to his better kingdom, I have nothing to leave or lament except my father and mother, and the Lord will comfort them. Sometimes I think of Caleb Sewell, too. My mind never inclined to him, but he asked me often, and especially before he went with Sydney to the Indian country. 'Susanna,' he said one day when we were alone, 'I know the New England men have right on their side, and I hold it no wrong to take up arms for a good cause; but if you will be my wife I will not go to the army, because it is against your father's mind, but stay at home and be a peaceable merchant and a good husband to you.' I knew then that the time of my departure was drawing near, and told him so, but he would not believe it, and pressed me to say honestly if I preferred Sydney Archdale to him; and I said, 'Friend Caleb, that was once the case, but all such thoughts are passing from me, for I am going the way of all the earth;' and he left me seemingly in great sorrow, and I have never seen him since."

There was no flush on Susanna's pale cheek now; she

spoke in the shadow of the hereafter, and her speech and look brought the certainty of her early death so home to Constance that she could find no word of cheer or hopefulness, but sat by her side and wept sore.

"Don't grieve so, my friend;" and Susanna took her by the hand; "you will think it well with me in after years, when you are deep in the troubles of life, maybe, as I have heard old people speak of their friends who died young. There is a better life than this, Constance; set your heart and hopes on it, and not on the things of this poor and passing world. Yet there is one thing I would fain say to you; Sydney Archdale loves you, and you love him. I cannot tell you how I know that—maybe, it is revealed to me. Do not grieve your father for the young man's sake, but do not marry that king's officer for all his rank and grandeur, seeing you love him not, for that is the worst of perjury;" but Susanna stopped short, as her mother, just returned from the meeting, stepped into the room.

Constance made a great effort to recover her composure and speak cheerfully to Mrs. Stoughton. The poor mother and father, too, were cheated into hope by the fitful disease, and their gentle daughter would not gainsay the fond expectations that comforted them for the time; but as her friend rose to go she whispered, "Come and see me as often as you can, for my stay here will not be long."

Sad at heart, Constance took her homeward way. It led along the bank of the Delaware; streets and wharfs now occupy the ground; but then there was no building for more than a mile, except a cottage at a short distance from the Vinelands, close by a ferry, between New Jersey and Pennsylvania, and inhabited by the ferryman and his wife. Constance had some acquaintance with the pair; they had come from her native place, and formerly kept a ferry on the Connecticut; but as she paused to speak to the wife, who stood at the door and kindly inquired for her father, her attention was attracted by a woman who sat on the rustic bench outside appropriated to travelers waiting for the ferry.

Large, gaunt, and dark-complexioned, her dress was of foreign fashion, and had once been good, but was now worn and shabby. Her face was foreign, too—of the Spanish type, it seemed, and might have been handsome some time in her day; but was prematurely old and wrinkled, and had, moreover, that strange, out-of-the-world look which people get by long seclusion from society in prisons, convents, or lunatic asylums. Constance was too little acquainted with life to know the meaning of that peculiar expression, and the woeful history it suggested; but she felt frightened by it, the more so that the black eyes of the strange-looking woman cast fierce and furtive glances at her from under a pair of almost shaggy brows. That feeling, and the fast falling shades of twilight, made her hasten along the lonely road; but she had scarcely got a quarter of a mile from the ferry-house, when quick steps behind made her look round, and there was the strange-looking woman. Constance stepped aside to let her pass; but instead of doing so she seized the girl's arm, and said, in a loud whisper, "Where is he? tell me this minute."

"Who?" said Constance, terribly frightened, but trying to keep calm and collected.

"Who, indeed!" cried the woman, with a satirical laugh; "you know very well who I mean—Cecil Devereux; he is somewhere hereabouts, and I will find him, for I am his lawful wife—I am, and you need not think to marry him. If you and your father knew what I do, you would not be so ready for the business;" and she laughed louder than before. "But that's no matter; I am his wife. He spent my jointure and got my son kidnapped—poor, poor Philip!—ay, and he put me in the mad-house the old nuns keep over yonder in Lima; but I got out you see; they didn't care to keep me any longer when he sent them no money. But I will have my husband. Where is he, I say?" and her clutch grew tighter; but pure terror gave the girl strength; with one desperate effort she freed herself, and fled along the road.

"Do you think to get rid of me that way?" cried the woman; "I'll stop your progress and your marriage too, senora;" and as Constance glanced behind, she saw her pull a long dagger-like knife from under her cloak and come scouring after.

Her threat would have been executed; for quickly as the girl ran she was on the point of overtaking her, when a sound of hoofs and shouts rose on the road



CAPTAIN DEVEREUX MAKES A VISIT IN STATE.

behind them. A party of four horsemen rode up at full speed; one of them springing from his saddle, dashed in between the uplifted knife and the intended victim; and Constance, faint with fright and terror, would have fallen to the ground, but for the supporting arms of Sydney Archdale. "Fear nothing, Constance; I will defend you with my life," he cried, bearing her back a few paces, and at the same time warding off a thrust which the frantic woman made at him; but in making it her foot slipped on a loose stone and she fell heavily to the ground, which the next moment was dyed with blood; for the sharp point of the knife had turned up in the fall and pierced deep into her right side.

The rest of the party had come up by this time; they consisted of Caleb Sewell, the French Count de Valencourt, and Dr. Adams. The latter's professional eye took in the situation at once. With the help of the other two he raised the woman from the ground; her fury was gone, for she was almost insensible from pain and loss of blood. The doctor drew the knife from her side, wiped up the wound with a large handkerchief which he happened to have about him, and said, "Gentlemen, we must get her to the nearest hospital as quickly as possible; it is her only chance for life, if any chance there be."

CHAPTER XXVIII.—A DARK SECRET REVEALED.

Constance saw and heard no more, for Sydney led her away from the shocking scene to where the road was skirted by a grassy bank.

"Sit down here and rest for a minute," he said; "you have been overwrought, Constance. Lean on my shoulder as you used to do when you were tired in our long rambles through Holyoke woods."

"Oh, Sydney, you have saved my life this day." She leaned on his shoulder, and he threw his arm round her as in the old familiar times. How much had happened since they parted!

"Thank Providence that I came in time. But take breath, and tell me who is that woman, and why did she attack you?" said Sydney.

Constance related the whole transaction as it occurred.

"Cecil Devereux—his lawful wife?" repeated the young man. "The woman is mad, of course; nothing but madness could have made her fall on you. But, Constance, there is truth in her wild sayings. Lieutenant Gray, who knows a good deal of the captain's history, told me as much at the door of his own hut beside Fort Frederick; and if that unhappy woman lives, it may be possible to prove it yet. But now tell me one thing—honestly, Constance, and before the Ever-present, who alone can hear and judge between us; is it true what the lieutenant told me Mrs. Danby gives out—that you have been engaged to Devereux for some time, and they are all coming here shortly to celebrate the wedding?"

"Mrs. Danby has been kind to me, and I have a right to speak well of her," said Constance; but that tale is false, whoever tells it. There never was an engagement between me and Captain Devereux, and there never will be while I keep my senses. He proposed for me, and my father was inclined to the match; but I never encouraged him—I never liked him, Sydney."

"It takes a burden off my heart to hear you say so," said Sydney, immensely relieved, "for I was foolish enough to believe the report, because it seemed to come from such well-informed quarters; and that, together with the promise I made to my father kept me from trying to meet you as I might have done many a time. Maybe I am not keeping the said promise now; but you once made a sort of engagement with one Sydney Archdale when he was hiding in the Holyoke Woods; I know it depended on your father's consent; but are you inclined to keep it still, Constance?"

"I am, Sydney; but only on the same condition. I would not vex my father in the time of his prosperity, and far less would I do so now in his poor unlucky days. Indeed, I partly expected you had forgotten all about it, now that you are a colonel in the patriot army, and we poor confiscated Tories." But the girl's look did not mean what she said, and young Archdale knew it.

If you were ten times confiscated and twenty times Tories I should think myself fortunate—ay, if they put me in the place of General Washington, which Providence forefend, for the country would make a poor change—provided you would keep that old woodland engage-

ment, and wait to see what time would do for us in the way of altering your father's views."

"Well, there is my hand upon it," said Constance.

He took the small white hand she offered, pressed and kissed it, and vowed and protested, after the manner of lovers in their fervid folly, as an old bachelor would say, till Constance noticed that it was getting dark, and started up with, "What a shame it is for me to leave my poor father so long alone; for charity's sake let me go, Sydney."

"I'll see you home," he said; "for I know the way to your house; if it were beyond the Rocky Mountains I should find it; and never fear, your father shall not see me; I would not give him cause of vexation any more than yourself."

Sydney kept his word, and took leave of her at a turn of the road, which, though close to the house, could not be seen from it for intervening trees. There were plans and promises of future meetings between them; but when Constance reached the garden gate, there stood the squire anxiously looking out for her. "Come into the parlor, child; I have news for you," he said. She followed him; and after carefully closing the door he handed her an open letter. "The Tory runner brought me that an hour ago. Read it for yourself and let me know what you think of it."

The girl's heart failed her at the first glance over that epistle; it was from Cecil Talbot Devereux, and set forth that through circumstances over which he had no control, and which he would fully explain on the first opportunity, had prevented him paying his respects to Squire Delamere and his charming daughter for a considerable time, yet his friendship for the one and love for the other had undergone no change; and having, by the sudden decease of his uncle, succeeded to the family estate and title, he was on his way, and would probably arrive early in the following evening, to lay them both, together with his heart, "at the feet of the beautiful—the incomparable Miss Delamere."

The captain added that he had heard with deep regret how, in common with many loyal subjects, the squire had been involved in misfortune by the temporary triumph of rebellion; but if he would consent to accompany him "and might not one say his bride?" to England, the Lavenham family had influence enough to obtain a government appointment adequate to his losses for the royal cause, till law and order should be established in the American provinces, and he could return to his patrimony of the Elms.

"There's what I call a true lover," said Delamere, looking more gratified than anybody had seen him look for many a day; "In haste to press his suit when he has come to title and estate, and we have come to poverty. Constance, my girl, that is not the way of the world."

"It is not, father," said Constance, collecting herself as well as she could; but there are tales about the captain which you ought to hear, and one of them I should have told you long ago—maybe you'll be angry with me but I feared it would annoy you, and you had trouble enough at the time."

"I will not be angry, my child; come here and sit beside me, and tell me whatever it is."

She sat down by her father's side, and gave him a clear but quiet account of the captain's strange conduct on the day of her interview with Washington; what Mr. Archdale had told her on the subject, and the kind message he sent to him. Then she narrated her adventure that evening with the frantic woman who said she was Devereux's wife, and brought so many charges against him; how Sydney Archdale had saved her life at the risk of his own; and what he said about the woman's words being true. But Constance did not tell what else he said, nor what she said herself while they sat on the grassy bank.

When the heat of its midsummer afternoon was getting tempered by the evening breeze, and the first flush of sunset was tinging the western sky, the inhabitants of the small houses which formed a straggling hamlet at the country end of Chestnut street were surprised to see a gentleman, riding in high state and fashion, with gold-laced coat, hat of the newest cock, and two liveried servants behind him, alight at the house with green palings and flower-beds in front.

It was Cecil Talbot Devereux, Viscount Lavenham coming in the certain hope to woo Delamere's daughter successfully at last. The good and beautiful girl had

charmed him from the first introduction. He loved her with all the heart that remained to him in the lees of an evil life. Moreover, there was a distant prospect of the Elms afforded to him and his family, through the putting down of the rebellion, which all their class confidently expected. In short, circumstances on all sides seemed in his favor. One would have known by the man's look and bearing that he believed his star to be in the ascendant; but "the feet of Nemesis are shod with wool," says the classic proverb.

At the time when the new-made viscount rode up to the house with the green palings, a group of four—Dr. Adams, Caleb Sewell, Count de Valencourt, and Sydney Archdale—stood speaking low and earnestly in the accident ward of the old hospital of Philadelphia, which was said to owe its foundation to William Penn, but has been long ago superseded by a structure more in accordance with the dimensions and appearance of the modern city. Their meeting there was casual, though on the same subject. Each had come to inquire after the poor insane woman, whose fall on her own knife they had witnessed on the preceding day; but Dr. Adams had been at the hospital some time before the others. His business in the neighborhood was to see Susanna Stoughton. He had made the journey from Massachusetts at the request of her father and mother, but naturally took an interest in the case which had occurred before his eyes, and his professional reputation made him in a manner free of every medical institution.

"She has fallen into a state of unconsciousness," he said, in reply to a question from Sydney Archdale, "and may never recover, for, as I understand the symptoms, she has not many hours to live."

"Are you sure of that?" cried a voice which startled them all. The woman had partially raised herself in the bed, and was looking from one to another of the four, as if to recognise them.

"Are you sure of that?" she repeated, in a sharper tone. The fire of insanity had passed from her eyes and given place to a look of mingled fear and anxiety.

"Life and death are in the hand of God," said the doctor; "but if you have any worldly affairs to settle, I advise you to do so without delay."

"I have no affairs—Devereux has left me none," said the woman; "but I have something to tell which I cannot die with on my mind. Is there anybody here that knows Squire Delamere?"

"We are all friends of Squire Delamere," said Sydney Archdale; "and whatever you tell us shall certainly be told to him."

"You are the young man that saved his daughter from me—God bless you for that. I am glad I did not do it now; and she so kind to my son, Philip. Poor boy, to think of him serving strangers; and his father's property—all that Devereux couldn't spend and destroy of it—remaining for him in Jamaica. Will anybody go and tell him that he is the rightful heir? But listen, I have more than that to say," and she looked fixedly at Sydney. "If you are his friend, go and tell Squire Delamere that the man he thinks a grand match for his daughter is the murderer of his son. I followed him from his lodgings in the back street, and saw him do the deed in the garden of the old inn at Versailles; and all the city knew why it was done. He called himself Courtney Percival then, and pretended to be a West Indian. I don't know if I will be forgiven for keeping it so long, but I have told it now. He won't get marrying her when I am gone," and the woman fell back with something between a laugh and a moan.

"Let us go at once, and tell the squire," said Sydney; "perhaps he may get here in time to hear the tale from her own lips and inquire into the truth of it."

"It is true, every word," said De Valencourt, who had been standing with folded arms and downcast eyes while the woman spoke. "I recognised the assassin in the midst of the American camp, after searching every town in Europe for him in vain; and I will search every town in America—aye, every British garrison, if that be possible, and bring him to justice with my own hand, wherever I may find him, for I am the man whose unguarded youth young Delamere protected from his robbery at the hazard table, and in revenge was foully murdered by the villain."

CHAPTER XXIX.—JUSTICE AT LAST.

Constance had slipped away to her own room to prepare her mind for the approaching ordeal. She had that evening to

refuse definitely the Lavenham coronet, and permanently dis-appoint her father; there was no alternative to be thought of, and old Red-hand's wigwam, with Kashutan haunting its corners, would have been, for the moment at least, a welcome retreat from the whole business. She sat at the window, leaning her head on her hand; the lingering light of the summer day still made objects plainly visible, but she did not see, because the same trees which concealed Sydney and herself on the previous evening, now hid from her view him and his two companions. They had hastened to the house to make known to Delamere the dying woman's disclosures, but paused there to take counsel. None of them imagined that the man whose long-hidden crime they came to reveal was then sitting in the squire's parlor; yet the two most forward men in facing steel or cannon found their courage fail them.

"I cannot enter the house of a gentleman to whom I have caused the loss of his only son, and I a stranger to him," said De Valencourt; "you are his friends; go in and tell him the woman's tale. I will remain at hand, and be ready to give my evidence if necessary."

"It looks rather cowardly," said Sydney, "but I confess myself half afraid to face the squire with this news; he has a stiff prejudice against me, and will say at the first brush that it is an invented calumny."

"Your scruples are honest, friends," said Caleb Sewell; "I, who have no reason for any such, will inform Delamere, seeing that, as the case stands, it is needful he should know at once."

Viscount Lavenham had responded to the squire's cordial greetings, and inquired for Miss Delamere in terms of more than usual compliment; he had expressed his deep regret for the squire's mishaps in person and property, and his firm belief, founded on the best information, that the wrongs of all loyal subjects would be amply redressed within the year; and was opening his own particular business with, "In the meantime let me hope, now that I have succeeded to my family estate and title—" when Philip looked in at the door.

"There is a gentleman outside who wishes to speak with you squire; he will not come in, because I said you had company; but," the boy added in a lower tone, "I know it is Mr. Sewell."

"How is this, friend Caleb, that you will not come in, and it is such a time since we have met?" said Delamere, stepping out and offering his hand to the military merchant.

"Friend Delamere," said Caleb, as he took it with the kindly grasp of former days, "I would not be hasty in speaking of a grievous matter, but these times admit of no ceremony in breaking bad news. I have come to tell thee that the man to whom thou intendest giving thy daughter in marriage was the slayer of thy son."

Stunned and stupefied, Delamere staggered back against the wall, and stared on the speaker without uttering a word, while Devereux, who had heard all that passed through the open door, darted between the two, and out of the house, exclaiming, "It is a false, malicious slander; I will prove it."

"It is true," said Sydney Archdale, stepping forward to bar his retreat, "for your poor wife, now dying, has confessed that she saw the deed done."

"False or true," cried Devereux, the criminal ruffian within him breaking through the thin coat of high-life polish, "you shall never get Constance;" and he rushed upon Sydney with his drawn hanger. The young man happened to be unarmed at the time, yet he stood his ground, determined to close with him; but before Sydney could try that desperate chance, De Valencourt had stepped from behind the garden-gate. His sword was drawn in a moment, and he rushed forward to strike down the assassin's arm. But Devereux, furious as the truth dawned upon him, sprang forward, caught the blow, and fell severely wounded. He reeled and fell almost at the threshold of the man whose noon of life he had darkened with such a heavy cloud of sorrow.

Constance flew downstairs at the tumult, and saw her father still standing against the wall. The color left her face at the sight of his; but somebody came between them, took each by the arm and led them into the parlor, and then they saw it was Mr. Archdale.

"This is kind of you, Archdale. I have behaved ill to you and your son, and I am sorry for it; that is all I can say, for my mind is confused. May the Lord help me!" said the squire, sitting down beside his daughter.

"Any man would be confused in your circumstances. As for the past, never mind it, we are all liable to mistakes and misunderstandings, my friend. I was passing your house, saw what occurred, and came to see if I could be of any use to you."

"Well, that was kind; but are you sure what Caleb Sewell said to me was true?" said the poor bewildered squire.

"Caleb Sewell would speak nothing but the truth, as far as his knowledge went," said Archdale. "I do not perfectly understand the case myself, but probably Sydney can explain it; and if you will allow him, he will do so by-and-by."

Constance would ask no questions that might further confuse her father, and the three sat almost in silence till a low voice spoke at the parlor door. Nobody would have thought it was the colonel of one of the best regiments in Washington's army who asked in such gentle and modest tones if he might come in.

"Come in and welcome, Sydney! I wish you had never been a stranger in my house," said Delamere.

"Sydney came, sat down at his other side, and rehearsed to

them all the particulars already related, adding that De Valencourt had been arrested by the legal authorities; but himself and Caleb Sewell, having become security for his appearance at the inquest, he was allowed to go at large. The young man also informed them that, on inquiring at the hospital, he had learned the unlucky woman was gone from this world. Except a few words in response to the prayer which Dr. Adams offered up for her departing soul, she had never spoken after her statement regarding Devereux. It soon became apparent that Devereux himself would not long survive her. He had not strength to stand against the consequences of his wound, and succumbed in a few days.

When the first shock was over, it was surprising how calmly Delamere heard and spoke of the fearful discovery, though in all his after-days it was observed that he avoided the subject as far as possible, and the only reflection he ever made upon it was, "Men might learn from my experience that the ways of Providence are wiser than our wishes, for into what an abyss would the fulfillment of mine have plunged me and my child!"

As the family were strangers in Philadelphia, the private history of their case remained unknown to the public, though it was generally believed that the rivalry for the hand of Delamere's fair daughter had prompted the Englishman's attack on Colonel Archdale. The attack furnished the best and safest plea for De Valencourt. It was proved by all the witnesses on the inquest that he had stepped forward in defence of his unarmed friend, and on a subsequent trial he was acquitted by a verdict of justifiable homicide.

The Danbys, on their journey to assist at the expected marriage, arrived in time to take charge of their cousin's funeral, and themselves carried the news of his fate to England, whither Major Danby was allowed to return in consideration of his age and state of health. The entire connection there at first blazoned the tale of the murder of a British nobleman by American rebels; but De Valencourt's letters to his friends in Versailles, where the assassination of young Delamere was yet remembered, cast such a light on the subject, that they were fain to hush it up, and the records of the period say that the last Vicount Lavenham fell in a duel with an American officer, leaving no issue, and thus the title became extinct.

The legal authorities exonerated De Valencourt from all blame, after a searching inquiry into all the circumstances of Devereux's death. This inquiry came to an end near the noon of a glorious July day. On the same day the town of Philadelphia evidently looked for some great event.

For days past the people had been gathering in from the farms and villages beyond the Schuylkill, from the New Jersey town on the other side of the Delaware, from the hill hamlets on the north, and the backwood townships on the frontiers of New York.

Something was to be seen or heard in Philadelphia which the Delameres' own troubles prevented them from knowing, though it was known to all the land beside.

They had not seen Mr. Archdale for some time. The Continental Congress, of which he was a member, had been sitting with closed doors day and night, it was said, in deep debate but toward its place of assembly the living stream from every street was tending, and they went with the tide.

The old court-house of Philadelphia, which still forms an integral part of that historic block of buildings known as the State House, and fronting on Chestnut street, then fronted on the green, or common.

It was a square, for almost a century, has been named Independence Square. When the squire and his company reached it, the crowd there had become so dense that further progress in any direction was impossible, and they remained fixed as the rest. The air was filled with a hum of subdued voices, but every eye turned to the nearest house. Its doors were fast closed till the clock of the nearest church struck twelve; then a sonorous bell rang out a long and solemn peal. The bell is treasured among the heirlooms of the land, and still bears the inscription, "Proclaim liberty throughout all the land unto all the inhabitants thereof." As its tolling ceased, the doors of the court-house slowly opened, and Mr. Archdale appeared on the steps, with a parchment in his hand. A dead silence fell on the gathered thousands, while in a clear, distinct voice, which all could hear and none mistake, he read to them one of the most important documents of modern history, the Declaration of Independence of the thirteen United States of North America, signed by their chosen representatives in the Continental Congress. The dead silence continued till Archdale had read the last words: "and for the support of this declaration, with a firm reliance on the Divine Providence we mutually pledge to each other our lives, our fortunes, and our sacred honor." Then the outburst of a people's approbation, shout after shout, rent the summer air, and was re-echoed by the streets and squares around.

In another moment the multitude began to move, the members of Congress had already made their way out of the court-house, and Archdale was shaking hands with Delamere.

"I never thought to hear that, Archdale," said the squire. "I never thought to read it once, but Providence conducts the steps of nations, as well as those of individuals, to goals they little dream of, my friend."

"Well, Archdale, you had always a deeper insight into things than I, and my days of meddling with politics are over." Here Delamere perceived that his friend had caught sight of something which seemed as much to his mind as the Declaration; and following the direction of his look, he saw

Sydney and Constance arm-and-arm, their eyes sparkling with the same patriotic fire. "See her safe through the crowd, my boy," he said.

"Let me see her safe through life, sir," said Sydney, coming close to him; there has been an agreement between her and me to that effect for many a day, but she always made it depend on your consent."

"You have it, Sydney," said Delamere; "Constance is a good daughter, and you are a good son; may the future make up for the past to us all."

Constance Delamere became Mrs. Colonel Archdale, by a very quiet and unostentatious wedding. She lived to prove, by her own example, that the loving and dutiful daughter is likely to make a devoted wife.

Sydney served with valor and distinction throughout the War of Independence.

The daughter of Jacob and Rachel Stoughton had gone from them also, but it was on the return journey.

Caleb Sewell was with them at the time, but soon after re-joined Washington's army, and never returned, for in a gallant attempt to rally his regiment he fell in the disastrous battle of Germantown.

At the end of the war the Elms was restored to him, chiefly on account of the distinguished services of his son-in-law, and he returned to his patrimonial mansion a wiser if less loyal man. Denis Dargan returned to his ancient place of best man. With him, by way of assistant and successor to Hannah, who had now Greenland to manage as well as Delamere's house, came Martha, once the steadfast-minded maid; but she had been Mrs. Dargan for some years.

Philip sold his West Indian inheritance, and with the proceeds bought a farm on the banks of the Connecticut, partly on account of a New England lady of color, whom he wooed and won, and partly on account of the lady whose page he had been, and whom he occasionally called Miss Constance when she was training up her sons in the way they should go.

Lieutenant Gray married his old sweet-heart, who had been left a widow, and settled near the Elms.

Of Count De Valencourt nothing is known, except that after serving the cause he had adopted in field and fortress, and seeing the sword of France finally turn the scale in favor of America, he returned with Lafayette and other soldiers of liberty to set up her standard in his native land.

The time of peace and prosperity which succeeded the War of Independence brought its blessing to the Elms; the two squires who had differed so far concerning the way that led to it, lived to rejoice in their country's advance.

The united descendants of the Bedfordshire knights, Sydney and Constance, in their turn grew old and grey before the scythe and sand-glass; but the winters had no frost for the fond and faithful love that linked their hearts together, and that had been so sorely tried in their time.

THE END

The Road to Fortune.

How to get on in life, and secure a competency, is the great struggle of the masses. The world abounds in old proverbs purporting to make the matter as "clear as the road to mill," yet very often they come as wide as possible from the mark. A man may "rise with a broom" and "work like a beaver," and "take care of the pence," yet never have the pounds to take care of. He may, by dint of scraping and saving and pinching, until life is as dry as a chip, amass a little hoard, which is worse than poverty with a noble manhood. But it is not these things that make a man rich, as the world commonly goes. It is being the right man in the right place. Look out for the main chance to make an honest dollar, and then improve the fleeting moment. A lad once had a chance to buy some village lots in the outskirts of a large manufacturing town. The price was the same as that of a good suit of clothes. The lots were covered with scrub oak, and did not look very inviting, while the handsome suit was very attractive. Very naturally he chose the latter, but he looked on with very regretful feelings a few years later, when he saw the ground broken on those lots for a railroad depot, and knew that a sum had been paid for them sufficient to build and furnish a handsome house.

Steady industry, combined with a wide awake, intelligent observation of all that goes on in the world about him, is the best capital for success a man can have—ignorant drudgery about the poorest. I know a man who with his large family delve like slaves for sixteen hours a day, and yet, through his dolish ignorance, has squandered eleven thousand dollars, and is living now on a rented farm. He is bequeathing the same cheerless, forfeitless legacy to his children. Give your children the best education in your power. Keep them wide awake and intelligent with regard to the world in which they live, and you have given them a fair start in life. If they do not succeed, they cannot reproach your memory for the failure



THE WAR HORSE, "BAY BILLY."

A VETERAN'S STORY.

You may talk of horses of renown,
What Goldsmith Maid has done,
How Dexter cut the seconds down,
And Fellowcraft's great run.
Would you hear about a horse that once
A mighty battle won?

'Twas the last fight at Fredericksburg—
Perhaps the day you reck—
Our boys, the Twenty-Second Maine,
Kept Early's men in check,
Just where Wade Hampton boomed away,
The fight went neck and neck.

Right stoutly did we hold the wing
'Gainst odds increasing still;
Five several stubborn times we charged
The battery on the hill,
And five times beaten back, reformed,
And kept our column still.

At last from out the centre fight
Spurred up a General's Aid,
"That battery must silenced be!"
He cried, as past he sped,
Our Colonel simply touched his cap,
And then with measured tread,

To lead the crouching line once more
The grand old fellow came,
No wounded man but raised his head
And strove to gasp his name;
And those who could not speak nor stir,
"God blessed him" just the same.

For he was all the world to us,
That hero gray and grim.
Right well he knew that fearful slope
We'd climb with none but him,
Though while his white head led the way
We'd charge hell's portals in.

This time we were not half way up
When 'midst the storm of shell,
Our leader with his sword upraised,
Beneath our bay'nets fell;
And as we bore him back, the foe
Set up a fearful yell.

Our hearts went with him; back we swept,
And when the bugle said,
"Up, charge again!" no man was there
But hung his dogged head;
"We've no one left to lead us now,"
The sullen soldiers said.

Just then, before the laggard line,
The Colonel's horse we spied,
Bay Billy with his trappings on,
His nostrils swelling wide,
As though still on his gallant back
The master sat astride.

Right royally he took the place
That was of old his wont,
And with a neigh, that seemed to say
Above that battle's brunt,
"How can the Twenty-Second charge
If I am not in front?"

Like statues we stood rooted there
And gazed a little space,
Above the floating mane we missed
The dear familiar face;
But we saw Bay Billy's eye of fire
And it gave us hearts of grace.

No bugle call could rouse us all
As that brave sight had done—
Down all the battered line we felt
A lightning impulse run;
Up, up the hill we followed Bill,
And captured every gun.

And when upon the conquered height
Died out the battle's hum,
Vainly mid living and the dead
We sought our hero dumb;
It seemed as if a spectre stood
To win that day had come.

And then the dusk and dew of night
Fell softly o'er the plain,
As though o'er man's dread work of death
The angels wept again,
And drew night's curtain gently round
A thousand beds of pain.

All night the surgeon's torches went
The ghastly rows between;
All night with solemn step I paced
The torn and bloody green;
But all who fought in the big war
Such fearful sights have seen.

At last the morning broke. The lark
Sang in the merry skies,
As if to e'en the sleepers there
It bade awake and rise!
Though nought but that last trump of all
Could ope their heavy eyes.

And then once more with banners gay
Stretched out the long brigade;
Trimly upon the furrowed field
The troops stood on parade;
And bravely 'mid the ranks were closed
The gaps the fight had made.

Not half the Twenty-Second's men
Were in their place that morn,
And Corporal Dick, who yester-noon
Stood six brave fellows on,
Now touched my elbow in the ranks,
For all between were gone.

Ah! who forgets that dreary hour
When, as with misty eyes,
To call the old familiar roll
The solemn Sergeant tries,
One feels the thumping of the heart
When no prompt voice replies.

And as in falt'ring tone and slow
The last few names were said,
Across the field some missing horse
Came up with weary tread;
It caught the Sergeant's eye, and quick
Bay Billy's name he read,

Yes! there the old bay hero stood,
All safe from battle's harms;
And ere an order could be heard,
Or the bugle's quick alarms,
Down all the front from end to end,
The troops presented arms.

Not all the shoulder straps on earth
Could still that mighty cheer,
And ever from that famous day
When rang the roll-call clear,
Bay Billy's name was read, and then
The whole line answered "Here!"

VERY PERPLEXING.—A man bought a horse. It was the first one he ever owned. He saw in a newspaper that a side-window in a stable makes a horse's eye weak on that side; a window in front hurts his eyes by the glare; a window behind makes him squint-eyed; a window on a diagonal line makes him shy when he travels; a stable without a window makes him blind. He sold the horse.

LIFE IN A WATER-DROP.

The sun is reflected in the ocean as in the water drop, and in both are called into existence beings the most varied in size and form. We admire the myriads of creatures which inhabit the depths of the ocean, from the monstrous whale to the tiniest specimen of the finny tribe. Their chequered existence and efforts; their fighting, striving and disporting; their pains and

or the smallest creature, in that which seems in itself too small to contain any living object; the breath of our mouth is strong enough to agitate it, and a few rays of the sun are sufficient to convert it into vapor. But we place this drop of water beneath two clean squares of glass, beneath the microscope, and, lo what life suddenly presents itself; we scarcely trust our senses. The little drop has expanded into a large plain; wonderful shapes rush backwards and forwards, drawing towards and repulsing each other,



WHAT I FIND IN A DROP OF WATER.

pleasures; their various and wonderful construction; the mode and manner of their subsistence, all fill us with wonder, and we are awe-inspired while contemplating the infinite and manifold capacity with which the Creating Power has stored the depths of the waters. But if the size, the power, and the variety of the denizens of the deep excite our admiration, how much more do we find ourselves carried away by that feeling, while looking into the water drop?

Clear and transparent it lies before us; vainly our eye endeavors to discover the least evidence of life,

or resting placidly and rocking themselves, as if they were cradled on the waves of an extensive sea. These are no delusions; they are real living creatures, for they play with each other, they rush violently upon one another, they whirl round each other, they free and propel themselves, and run from one place in order to renew the same game with some other little creature, or madly they precipitate themselves upon one another, combat and struggle until the one conquers and the other is subdued; or carelessly they swim, side by side, until playful

ness or rapacity is awakened anew. One sees that these little creatures, which the sharpest eye cannot detect without the aid of the microscope, are susceptible of enjoyment and pain; in them lives an instinct which induces them to seek and enables them to find sustenance, which points out and leads them to avoid and escape the enemy stronger than themselves. Here one tumbles about in mad career, it stretches out its feelers, beats about with its tail, tears its fellows, and is as frolicsome as if perfectly happy. It is gay, cheerful, hops and dances, rocks and bends about upon the little waves of the water drop.

There is another creature; it does not swim about—remains upon the spot—but it contracts itself convulsively, and then stretches itself palpitatingly out again. Who could not detect in these motions the throes of agony? and so it is; for only just now it had freed itself from the jaws of a strong enemy. The utmost power has it exerted in order to get away; but he must have had a tight hold, severely wounded it, for only a few more throes, each becoming weaker and more faint, it draws itself together, stretches out its whole length once more, and sinks slowly to the bottom. It was a death struggle—it has expired.

On one spot a great creature lies, apparently quiet and indifferent. A smaller one passes carelessly by, and like a flash of lightning, the first dashes upon it. Vainly does the weaker seek to escape its more powerful enemy; he has already caught it, embraces it—the throes of the vanquished cease—it has become a prey.

This is only a general glance at the life in a water drop; but how great does it even show the small; how wondrously does everything shape itself within that of which we had formerly not the least conception. These are creatures which nature nowhere presents to the eye upon an enlarged scale, so marvelous, odd, and also again so beautiful, so merry and happy in their whole life and movements; and although defective, and in some respects only one step removed from vegetable life, they are yet animated and possessed of will and power. It would be impossible here to give a description of all, or even a great part of the ephemeral world in all its varied aspects; but we propose to take a nearer survey of some at least, in order to display the life in a single drop of water taken from a pond. Slowly and gracefully through the floods of this small drop of water, comes glidingly, swimming along, the little swan animalcule, turning and twisting its long, plant neck, swaying itself comfortably, and moving in every direction, sucking whatever nourishment or prey that may present itself. This animalcule has its name from its likeness to the swan; it carries its neck just as proudly and arched, only the head is wanting, for at the end there is a wide opening mouth, surrounded by innumerable beam-like lashes. The entire little creature is transparent, and it seems impossible that any species of nutriment could possibly pass through the thin throat, for even water seems too coarse and material for this small tube; but scarcely does one of the variously formed monads which exist in all waters, and of which many thousands could move and freely tumble about in the hollow of a poppy seed, approach its mouth, ere it gulps them down; we see them gliding through the throat, and see the green, gray or white monad laying in the little, but for this animalcule, great stomach. This monad is itself an animalcule, a living atom; and possibly, a still smaller animalcule serves for its nourishment; but the human eye has not yet penetrated thus far; possibly it may never do so, for the Creator has hidden from the material vision of man the limits of His creating power, alike in the infinitely great as infinitesimally small.

Whirling along comes swimming by the side of the swan animalcule the *Bell*. Here nature has still retained a form out of the vegetable kingdom, for the body of this animalcule is similar to the bell-shaped blossom of a May-flower, fastened to a long stem; this stem, through which passes a spiral-formed vein, a fine dark tube, is easily moveable; it closes itself, screw-like, together and stretches itself out again; this is the tail of the bell animalcule: at the

end there is a little knot, and soon this knot becomes attached to the bottom, or to a blade of grass, to a piece of wood, and the little animalcule is like a ship at anchor in a bay or harbor; its tail extends and turns itself, and the body of the animalcule, the little bell, whose opening is at the top, begins to turn round and round, and this movement is so quick and powerful, that it creates, even in the billows of the water drop, a whirlpool, which keeps going round wilder and more violently; it grows to a *Charybdis*, which none of the little monads who are caught within it can escape; the whirlpool is too fierce, they get drawn into it and find a grave in the jaws of the bell animalcule. The bell closes its tail, rolls together, but soon it stretches itself out again; the bell whirls, the whirlpool goes round, and in it many a quiet and thoughtless passing monad is drawn down. But the bell animalcule is also about meeting its punishment; again it whirls its bell violently, the tail breaks from the body and the bell floats without control hither and thither on the waves of the water drop; but it knows how to help itself—nature has provided for such a catastrophe in its creation. The bell sinks to the bottom, and soon the missing tail grows again, and if death even comes, nature has been so liberal in the creation of this little world—new life and new creatures arise so quickly out of those which have passed away, and so great is their number, that the death of one is less than a drop in the ocean, or a grain of sand in the Desert of Sahara.

The lives of innumerable animalcules pass away as a breath, but they rise into existence in equally infinite numbers. The animalcules multiply in every variety of way, but the most curious is that of dividing, and out of the severed parts new animalcules are formed, which, in a few hours, again divide themselves into parts, forming new creatures, and this process of increase proceeds to infinity. Numbers alone are able in some measure to give an idea of this infinite increasing power. An animalcule requires for its parting process about five hours, after which time the new creatures stand then perfect, and these again require the same time for their increase. At this rate of increase one single animalcule would, by the process of separation, be increased to half a million in four days, and after a month it would be inconceivable where this innumerable quantity of animalcules, which are singly imperceptible to the naked eye, can possibly be placed. But nature has limited even this vast increasing power, and she freely sacrifices millions in order to preserve their species always in their proper quantities. What are, compared with these numbers, the quantities of herrings, sprats, and other fish which crowd the seas in such mighty masses? They vanish into nothingness.

The chief among these animalcules which increase by means of separation, is the *Weapon*, which has a species of dagger-like bristles at the back, and also a more pliable description, similarly formed, all round the mouth, which serve as feelers. Their movement is peculiar, slow, almost floating; they proceed forward, then they shrink backward, and quickly return again in order to proceed anew on their path. This animalcule pushes, when the parting processes commence, at first a few little pieces from his side, then follow others, and soon the whole is divided into equal halves, which form themselves into new animalcules, and after a few hours, begin to separate themselves also.

One of the most interesting animalcules which we discover, with the aid of the microscope, is the *Ship*. Like a little glass ship which has lost in a storm its masts and sails, its ropes and riggings, does it proceed, quietly swimming through the little waves; it is clear and transparent, like an enchanted little craft—a delicate fairy palace; we see in both sides the ribs of the ship, which the carpenter has fitted into the keel; we see the deck, and in it three holes, or light points, in which the masts were raised; it must have been a three-masted ship. But the ship's crew, the sailors, are wanting; nor is there a rudder which propels or regulates the vessel's course; the motive power which produces the progress of this tiny little craft is a mystery. Has nature in this curious animalcule copied the invention of man's hand? Was this little creature the minute model after which man has constructed the ship in which he crosses seas and oceans? Nature is always original in her creations; she had already created the same little animalcule for hundred thousands of years, if hypothesis on which geologists base their calculations as to the time it takes to accomplish certain results be correct; we believe that these data are generally unreliable, and therefore we simply say, that these little creatures have existed from the beginning of the formation of some of the most important strata, which must have occupied a sufficiently long time in their formation to have been, at least, in existence antecedent to the first building of ships. These animalcules are to be found in, and indeed form no inconsiderable part of all coal and chalk formations. But it can, on the other hand, not be said that the animalcule was the minute model after which man built before the microscope enabled man to discover the invisible world of the diminutive.

Another peculiar animalcule is the *Sickle*, which resembles very much the Turkish crescent. Even in its ways has this finely beaded animalcule, which, throughout its length, is constructed of little globules, regularly joining each other and divided across the middle by a larger globule than the rest, like a row of pearls, something characteristic of the believers of the crescent, for it exhibits the same fatal repose; it is equally absorbed in itself, for it can lie a long time at the bottom without motion; occasionally it raises its sickle, but exhausted it allows it to drop again immediately, and relapses into its former quiet state. On both ends of this animalcule there are a few red grains, sometimes more, at others less, which now keep moving and then again remain motionless, whose signification is as yet rather undetermined.

Besides these various creatures which are grouped in the little world of a water drop, there are many more larger and smaller; most of them, however, are only occasionally met with, and only few others have the grace and beauty in their appearance and motions which distinguish those we have mentioned. Amongst the larger species we are struck first by the *Trumpet* and the *Bullet* animalcules. The first is like a trumpet or cornucopia; in its interior there are a number of dark spots and a row of globules, like a string of beads; about its mouth are bristle-like threads. The bullet animalcule is round, covered as with a net, and also trimmed around with a fine row of hair; in the interior there are always to be seen several smaller bullets. But when we observe the whole closer, we find that it is not a single creature, but a group of thousands of smaller double-trunked animalcules, which combine in the formation of this greater one, and thus form a numerous isolated family.

Repulsive, unpleasant creatures also present themselves in a drop of water, which affect us unpleasantly in their nature, their motions, and their form. Thus there is a species of *Chameleon* amongst the animalcules which can expand and contract its body into the most curious shapes; now it elongates itself, stretching its members in the most opposite directions with a slow expanding motion; now it draws itself up in a heap, and when another animalcule approaches, it stretches out its arms, embraces, entwines it, and, as it were, envelops it, until it dies in its grasp.

We have not space to follow out the life in a water drop to its various specialities and curiosities, and it is impossible, under any circumstances, entirely to exhaust the subject. The more one looks into it the greater the wonders which present themselves; the more nature discloses herself in her hitherto unknown powers, the more does she appear to us so wonderfully great in miniature.

The life in a water drop which we have here exhibited, is indeed, not to be found in every water; but it is seen in ponds, swamps, and generally in all waters in which animal and fossil matter is in the act of decomposition; cooked, distilled or rain water contain no animalcules, but only a few days are required, if left in the open air, for the formation of living things within it; it begins to move, to live—but whence do they come? What produces these little animalcules? Has the air conveyed to the water the matter necessary for their formation? It is possible.

How all this is accomplished man will, probably, never discover; but the lesson conveyed in the foregoing facts, rightly appreciated, opens a vast field of speculation in exhibiting the infinity of the Creator's power; and yet, strange to say, the pride of many of those who occupy themselves in tracing the laws of nature leads them to overlook the Creator in creation, and the great design is lost sight of in the contemplation of minute laws and detailed process.

Gambling.

BY "PROF."

Gambling is said to have been invented by the Lydians when under the pressure of great famine; to divert themselves from their sufferings they contrived dice, balls, tables, etc. "More likely," says a learned censor, "the passage ought to be otherwise translated: 'The Lydians, having combined dice, balls and tables, and invented gaming, were reduced to great famine and to extreme sufferings.'" In plain truth, while engaged in this practice, they could think of nothing else; their property, their farms, their looms, their nets, their establishments of industry were all lying waste; their time and talents were all absorbed in this intoxicating pursuit.

At what period gaming was introduced into England, it would be difficult to determine; but there are few countries where it is carried on to greater extent. Montaigne seems to have been well aware of the evils of gaming, and gives us the reason why he relinquished it: "I used," said he, "to like, formerly, games of chance with cards and dice; but of that folly I have long been cured, merely because I found that whatever good countenance I put on when I lost, I did not feel my vexation the less." More than that, we have seen the best of friends sit down to a gaming table, in perfect good

humor, but rise up from it enemies for life. Who can describe the abandonment too frequently attendant on this destructive practice; the friendship of such men is a confederacy in vice; and that they cannot depend on each other has been exemplified by its fatal consequences—its deteriorating influence upon the temper and disposition, as well as the pecuniary affairs—its false effects, in short, both to the unhappy individual who is cursed with the propensity and to society in general. Connecting cause with effect, it leads to misery and ruin; even to robbery and murder.

"In gaming," Judge Blackstone says, "several parties engage to cast lots to determine upon whom the ruin shall at present fall, that the rest may be saved a little longer." Taken in any light this is an offence of the most alarming nature; tending, by necessary consequence, to promote idleness, theft and debauchery among the lower classes; and among persons of a superior rank it has frequently been attended with the sudden ruin and desolation of ancient and opulent families, an abandonment to every principle of honor and virtue, and too often has ended in self-murder. To this passion of gambling every valuable consideration has been made a sacrifice; and it is a passion that has lamentably prevailed in our own country, and which we seem to have derived from the ancient Germans, who, according to the account given of them by Tacitus, were bewitched with the spirit of play to a most exorbitant degree. "They addict themselves," says he, "to dice (which is wonderful) when sober, and as a serious employment, with such a mad desire of winning or losing, that, when stripped of everything else, they will stake at last their liberty, and then their very selves. The loser goes into a voluntary slavery, and though younger and stronger than his antagonist, suffers himself to be bound and sold. And this perseverance in so bad a cause they call the point of honor."

Father le Compte, in his "Travels to China," says, "Gaming is equally prohibited among the common people and mandarins; and yet this does not hinder their playing, and frequently losing all they have—their lands, houses, children, and even their wives, which are all sometimes laid on a single card." Shakespeare says: "Keep a gamester from the dice, and a good student from his book, and it is wonderful." Lord Bacon says: "a gamester, the greater the master he is in his art, the worse man he is," and Addison says: "Could we look into the mind of a common gamester, we should see it full of nothing but trumps and matedores; his slumbers are haunted with kings, queens and knaves."

To those who play cards and other games as an innocent amusement, we may trace the most aggravated injuries resulting from gambling. It is there that young men of talent, education and wealth take the degree of entered apprentice. The example of men in high life, men in public stations and responsible offices, has a powerful and corrupting influence on society, and does much to increase the evil, and forward as well as sanction the high-handed robbery of fine dressed black legs. The gambling hells in our cities, tolerated and patronized, are a disgrace to any nation bearing a Christian name, and would be banished from a Pagan community. Gambling assumes a great variety of forms, from the flipping of a cent in the bar room for a glass of whiskey, up to the splendidly furnished faro bank room, where men lose thousands of dollars.

A Beautiful Allegory.

Mr. Crittenden, of Kentucky, was once engaged in defending a man who had been indicted for a capital offense. After an elaborate and powerful argument, he closed his effort with the following beautiful and striking allegory:

When God in his eternal council conceived the thought of man's creation, He called to Him the three great ministers who wait constantly upon the throne—Justice, Truth and Mercy—and addressed them: "Shall we make man?" then said Justice, "Oh, God, make him not, for he will trample upon thy law." Truth answers also, "Oh, God, make him not, for he will pollute thy sanctuaries." But Mercy dropped upon her knees, looking up through her tears, and exclaimed, "Oh, God, make him—I will watch over him through all the dark paths which he may have to tread." Then God made man, and said to him, "Oh, man, thou art the child of Mercy, go and deal with thy brother."

Tact.

Steam, as it rushes out of the escape pipe, makes a great noise and whizzing, but it accomplishes nothing. It is only when the mighty power is rightly confined and applied, that it puts in motion the giant arms of the ponderous engine. The same truth holds good as regards the use of mental faculties and physical endowments. Unless their efforts are directed with judicious care and thoughtfulness, they will produce little effect, and only present a deplorable picture of wasted strength. There is such a thing as being very busy, and very weary, and very noisy, without having any permanent result or good to show for it. The doing of the right thing at the right moment, is what renders the use of our powers effective. This makes knowledge, enthusiasm, love, work together for the accomplishment of a definite purpose, in a manner that is in harmony with the laws of human nature and temperament. It will be found that the difference which makes the resultant of work, as performed by individuals in like circumstances and equal opportunities, depends very much upon the way they have applied their strength. We often speak of "tact" as a happy trait and special endowment, and no doubt some are gifted in this direction above others, but it is also a grace which can be sought and cultivated. There is something to be done besides kindling the fires and generating the steam. If it is not made obediently to do the service required of it, it becomes a puff of vapor or shatters the iron casement which confines it into a thousand fragments. Tact is the engineer that works the lever, and with sense, forethought and skill, sends the train thundering along the track, and checks its speed so that a child might outrun it. All our gifts and service will be sometime needed but not always in a certain way or measure. Tact calls for a loving heart and a clear understanding. The one will by a responsive chord catch the temper and the need of those about us, the other will give the fitting word and correct appreciation of time and place.

Years ago when it was the custom for young men who were preparing for the ministry to pursue a course of theological study under the personal direction of distinguished clergymen, there came to the study of the famous Dr. Bellamy a young minister who had graduated under his care and who sought the advice of his teacher in view of the lack of success which followed his labors. The doctor had learned that his young friend had made himself offensive by undue severity of speech and action, and when he was asked to explain the reason why no one was converted under his ministrations, he said, "Why, the reason is obvious enough; and if you will correct your error, go and learn wisdom of the fisherman. He does not go boisterously to work, as if he expected to bring the fish to his hook by giving them a regular scouring beforehand; but he casts in his line silently, and waits patiently for a bite; and, whenever a fish comes to his hook, he is watchful to take advantage of the right moment for drawing it up; and he is thankful if he gets a few, and perseveres in the hope of getting more. If you would adopt this same course as a fisher of men, you would have less reason to complain of the want of success.

The advice of the venerable teacher should be remembered by Christians who desire to make the best of their powers. There is a right way and a wrong way of doing everything, and happy is that servant who possesses that tact which makes each act and word tell for good. "Words fitly spoken are like apples of gold in pictures of silver."

A Sure Trust.

We need not go back to old records for proofs of God's daily, fatherly care over his children. Instances occur hourly in the lives of the men and women with whom we live and move, in which he providentially supplies their needs, when all help seems to be cut off.

A gentleman in Boston a few days ago was in great destitution, and had not the means of procuring a meal for his family. No one of his associates dreamed of his needs, and he was as sensitive as you would be about making them known. But he felt that God's eye saw all, and that his infinite heart of love had compassion upon him. He knew too that the wealth of the world was his; that his resources were boundless. So he went away and prayed that he would send him help. It was not long before he received a letter enclosing ten dollars, but there was no clue to the sender. He knew that whatever hand he sent it by, the money came from the Lord. He could

move hearts as easily as he could worlds. "Blessed is the man who trusteth in him!"

A lady I very well knew, was left a widow with three children to educate. By the hardest she educated them all well, and fitted them for high positions of usefulness. At one time she was in great straits for a sum of money which should pay a board bill for her son at college. The amount was thirty dollars, and was due to a widow like herself, who greatly needed it. She prayed long and earnestly, but no help came, and in distress she covered her face with her apron that her little girl should not see her agitation. Just then the child came in holding something very daintily with her apron.

"Mamma, a boy gave me this piece of paper," she said, "and then ran away. It was so dirty I would not take it in my fingers."

The mother opened the paper and found exactly thirty dollars. There was no signature, and it said within: "You need not seek to know who sent this, for you will never know."

She had told her necessities to none but God, and though she did try hard to find out the donor, she never got a clue to it.

Real Merit Will Win.

History furnishes no example of anything but merit winning in the end. Bubbles float easily and lightly upon the air, and sparkle very beautifully in the sunlight, but they float but for a moment, and then burst and are forgotten. Society has its bubbles, business circles have their bubbles, the church has its bubbles, life is full of bubbles, but their fate is the fate of the bubble in the air. Occasionally a Fisk bursts upon the community, dazzles for a day, and then dies and is forgotten—leaving the record of a life that no sensible man or boy would wish to imitate. There is no real merit in such a life—nothing that the world wishes to tie to or remember.

The only life that is a success is the one made up of actions which are the fruit of pure motive and the highest sense of duty to ourselves, our fellows and our Creator. Such motives and such deeds make character that will stand all the storms of temptation and evil that may ever beat upon life's pathway, and will win the approbation of every soul whose good opinion is worth anything. There is no meteoric glitter about such a life—it is the constant, modest twinkling of the star. It develops as the grain in the field develops, and not as the mushroom grows. It quietly bears its magnificent harvest of good, and is often so modest as scarcely to be noticed until it has been clouded in death. The very best lives that have ever left their impress upon the world have been so modest that they were scarcely noticed until they had set, and then the brilliant effect was as glorious and attractive as a horizon painted by a setting sun. The work of life is to do good, and no good was ever done that was ever lost; it is always as lasting as eternity. If men would be successful they must be something, and appear to be something.

Sensible men feel as a friend of ours expressed himself a few days since. He is the father of a beautiful and accomplished daughter, who was betrothed to a young man of character and some supposed wealth. Before the wedding day arrived, however, the young man, without any fault of his, was overtaken by misfortune, and he was forced into bankruptcy, and left without means. He went immediately to the father of the young lady, and offered to release the lady from her engagement. "So far as I am concerned," said the father, "you can go right along; I did not give you my daughter because I thought you had money;" and sometime after he gave the reason of this decision to some of his neighbors, who were expressing surprise that he should have consented to the alliance under the circumstances. He said: "Gentlemen, it is not every day that a man gets a son-in-law who does not drink, who is not profane, and who is honorable, upright and industrious. I have such a one, and as long as he remains as he is now, he can share with me my last dollar."

It was character that won here, and although many fathers would not have had the courage to act as sensibly, in their inmost heart they would despise themselves for not doing it. The world admires merit, and despises hollow glitter, and every time it neglects to act in accordance with its real feelings, it feels that it is a traitor to itself and the best good of society.

 The United States pays nearly three times as much in pensions as Great Britain.

Sunstroke.

This dangerous malady is caused by excessive heat. When a very hot term has set in we may usually begin to look for it on the second or third days of the term—it rarely occurs on the first. A kind of "murkey" condition of the atmosphere is regarded as favorable to bringing on sunstroke.

There are also conditions that predispose persons to sunstroke, as loss of sleep, trouble, excitement, close sleeping rooms, and the excessive use of stimulants. The attack is most liable to be made between the hours of 11 o'clock in the morning and 4 o'clock in the evening. It not unfrequently comes on with great suddenness, striking the patient down with little or no warning. The first symptoms, when experienced, are a severe pain in the head, blurred vision, dizziness, excessive sickness at the stomach, and soon unconsciousness. In very severe attacks the patient feels only a sharp pain in the head and at once becomes unconscious. Pulse full and hard at first, but finally very feeble.

When a person has been attacked with sunstroke, remove him at once to the nearest shady and cool place, and send with all possible haste for a physician. Do not wait to take him home or to a hospital. Until the physician arrives do all you can for him—there is no time to spare. Loosen his clothes, give him all the cool air you can, and apply cold water to the head. Let him lie on his back with the head a little elevated. Apply mustard plasters to the calves of the legs. Rub the upper part of the body with the hands wet in cold water.

If no physician can be had speedily, bathe the feet and if convenient give an injection of warm water.

It is always easier to prevent sunstroke than to cure it, so the person exposed to the hot sun should be ever on his guard. He should try to so manage it as to have a cool sleeping room. He should avoid loss of sleep and all unnecessary fatigue. His clothing should be thin. While working in the sun he should wear a light hat of a light color—never black. It would be well to fill the crown of it with green leaves; or where these are not convenient, with a damp cloth. Do not check perspiration. Drink cold water moderately, but not to excess. When much fatigued, rest. If you have in the morning a feeling of dizziness, headache or exhaustion, cease working in the sun immediately, if the sun is very hot. Better rest in the shade that day, for the symptoms are favorable for sunstroke, and exposure might bring on an attack.

Of course it will be understood that this applies only to extremely hot weather—there is not much danger of sunstroke in ordinary summer weather. The temperature must go up to a hundred in the shade to make it really dangerous. And that explains why there are so few sunstrokes in the Gulf States—the temperature very rarely goes to a hundred.

The Art of Thinking to a Purpose.

A distinguished prisoner of war, of large mental resources, being allowed to choose his employment while in confinement, selected one so simple as to require neither skill nor thought, assigning as a reason that, though his hands would be occupied by compulsion, his mind at least would continue his own and remain in freedom. We all have some of such work, and many have much. Now, if we had learned to employ this time in clear and consecutive thought—if our will could control our reflections, directing them in definite channels, and aiming to reach some well defined conclusions—we can hardly compute how great an effect would be produced in strengthening our mental powers, in maturing our judgment, in bringing us to the knowledge and appreciation of truth, and thus of increasing our solid happiness and our permanent value to the community.

The best exercise of every faculty is the chief road to true enjoyment, and no one who has once tasted the pleasures of thinking to a purpose will ever willingly allow his mind to dissipate in wandering thoughts and day dreams. Neither is such discipline so difficult as some imagine. If begun in early life, by awakening the childish interest in what is seen and heard, alluring the mind to reflection by question and answer, and accustoming the thoughts to dwell for short periods, but intently, upon familiar subjects, it will become pleasant exercise, and gradually grow into the tenor of the mind. What we truly will to do is already half accomplished; and the watch thus placed over the thoughts will, of itself, reduce to order and regularity much that is now chaos and

confusion. It is by no means necessary that the subjects thus mentally discussed should be remote or abstract. On the contrary, let them be matters familiar to our minds and agreeable to our tastes. Let the memory please us with pictures of the past, and the imagination revel in beauty of scene or heroism of deed. Let the business man revolve the scheme which he longs to execute, and the philosopher meditate on the principles of life. But whatever be the subject, let the thoughts pursue it with a consistent progress that shall eventuate in some real benefit to the mind.

Only One Moment.

In a New York popular down-town restaurant there was a waiter who had an unpleasant habit of saying "One moment." Otherwise he was a good-natured, affable man, who did his work well, but he was unable to break himself of his one failing. If, while he was wiping a knife or a spoon, a customer asked him for the salt, he would say, "One moment," finish the knife, and then hand the salt.

If he was polishing glasses and a gentleman who had a cup of coffee beside him asked for the sugar, the waiter would not set the glass down, serve the guest, and then resume his labor, but "one moment," and the sugar afterward. If the customer failed to see it in that light and repeated his request, the waiter would give his napkin a deprecatory flourish and impart to his reply a slight accent of reproach, "O-one mo-ment, sir."

The waiter came over to Jersey to visit some friends, and after a day of innocent hilarity he returned to the railroad station from which he was to embark for home. While waiting for the train he strolled out on the track and stood looking down the long perspective of the road. He did not observe an express train that was booming down from the opposite direction, but he heard the warning voice of a man on the platform shouting:

"Get off the track! Get off the track!"

"One moment, sir!" was the involuntary reply, and he tarried for an instant to straighten a kink in his watch chain; but the express train was in a hurry, and in one moment he had gone where moments are as years.

Getting on in Life.

Among the different kinds of ability which it is possible for a man to possess, we are inclined to rank as highest that peculiar, nameless, almost indescribable talent which enables its possessor to successfully get on in the world. Every one knows what is meant by this fortunate intellectual possession, but very many, if not all, would be more or less puzzled to accurately analyze or describe it. It is not, we fancy, so much any one single endowment that is thus designated, as it is a singularly happy combination of traits and qualities, relating to both mind and heart. But whatever it is, or may be, in itself, it certainly is a very valuable mental condition or attainment.

Human ability in general can be divided into a number of kinds which legitimately receive their own distinctive and proper names. For example, there is the speculative or philosophical ability to recollect; ability to think long and connectedly upon abstract truth or propositions; the ability to investigate and discuss intelligently the higher range of questions and topics in physical, mental and moral science. Then there is the poetical talent; the power to see visions of beauty and phases of truth in the scenes and events of ordinary life, and the power to express these in easy, flowing and melodious rhymes. Then there is the executive talent; the power to manage well large and critical enterprises; the power of handling men and facts; the power to carry a scheme or purpose or plan into immediate or telling effect; the power to "run things" generally, or make them "go." Then again there is the ingenious, inventive talent; the capacity for making discoveries in science, mechanics and the useful arts; the power which makes a man fertile in expedients and leads him to contrive all sorts of articles for ornament or use, or for both combined. Then there is the ability to write, which all authors and editors are supposed to have; the ability to sing, play and compose, which is the peculiar characteristic of musicians; the ability to imitate and personify, which belongs especially to actors; together with a hundred other kinds which we will not now attempt to enumerate. But this peculiar talent for getting on in life, is not any one of these mentioned, but is rather a mixture of a little of each and all of them.



THE IVY WALL.

BY SARAH DOUDNEY.

There is a door in the ivy wall
That opens toward the west,
And the burning rays of the sunset fall
On the face I love the best!
This is the picture—and long ago
I know that it passed away,
But the green leaves shine and the old bricks glow
In memory's light to-day.

'Twas sweet to wait by the ivy wall,
When the long day's toil was o'er,
Till I heard the sound of a soft footfall,
And her hand unclosed the door;
The shadows trembled, the lights were red,
And the world seemed miles away,
And the ivy-whisperings over her head
Still sing in my ears to-day.

A row of houses showy and tall
Stand up where the ivy grew
On the crumbling bricks of the dear old wall,
So the old gives place to new!
And the face, ah well, 'twas long ago,
And the world will claim its own;
But I dream my dream, and the red lights gleam,
As I go my way alone.

Odors.

What is an odor? Is it something which differs from every thing else in itself, or which only produces different effects, according to the organ of sense whereon it impinges. Experiments serve to show that while various bodies send forth odors, as a wood fire does sparks, yet there is a close connection between smell and taste.

If we close our eyes and hold our nose, all the finer kinds of flavor will be imperceptible. There are four primitive tastes,—sweet, sour, salt and bitter,—and if the mucous membrane of the nose is congested, as in the case of a cold in the head, or if we close our nostrils, it is only these four tastes that we can distinguish. The more delicate flavors are altogether lost to us. A man of taste must have a good nose.

It appears, then, that we taste in part with our organ of scent as we hear in part with our mouths, and it is precisely the same thing as the odor we perceive by our olfactorys.

Moisture is necessary also alike to odors and flavors. The secretions of the nose are for the purpose of receiving the odorous particles floating through the air, and the saliva in the mouth is part of the apparatus for taste.

Odorous bodies, like some over-populated countries, are continually sending off emigrants in all directions, especially by water. These substances, when placed in water, act on those molecules of the liquid they touch, and repel them more or less, thus producing a vacuum around them. It is by a sort of circulatory motion that they accomplish this—in the case of a people, we should call it a revolution—which is especially observable in camphor.

The effect of water in intensifying odors is seen in the fragrance of a flower-bed after a shower, or in the early morning, when the dew is still on the ground.

It is wonderful what a self-dispensing power many odors possess. We may well speak of strong smells, for they fly long distances without getting tired, and penetrate through pretty solid obstacles. Ambergris thrown up on the shore of the sea emits odor to a great distance, and thus, as it were, sends out invitations to those who are seeking it. Wells of petroleum oil give notice of their existence, as we might expect, several miles around.

Sailors say they can tell when they are approaching the shore of Spain long before they can see it, by the scent of rosemary, which must be a very pleasant welcome. We have all heard of the "spicy breezes" of Ceylon, from Bishop Heber's Missionary Hymn.

Musk perfumes a whole room for years, and what is most remarkable, at the end of that time it does not appear to have lost any weight. One man kept a mass of papers for forty years perfumed by a single grain of amber, and then calculated that each inch of the paper was saturated with one two-and-a-half millionth of a grain of the odorous substance.

A Frenchman has proposed a theory of harmony in odors as well as in sounds. He thinks that there is a music of perfumes, some agreeing among themselves, others being discordant.

Thus he declares that almond, vanilla, heliotrope and clematis form together a harmonic chord or octave, and so on with others.

But there is no uniformity in the olfactory sensations of people, as there is in their distinctions between sound and music. The same thing smells differently to different persons, and consequently no rule of scent-harmony can be laid down.

Among the Orientals asafœtida and valerian, the odor of which is disgusting to most of us, are prized for their agreeable scent. The smell of the sandal-wood, which makes it a favorite in China and India, is just on the border-line among us, between pleasant and unpleasant. Some persons rather like it and some find it offensive. There is an instance on record of a girl who liked the musty smell of old books, and of a lawyer to whom the fragrance of a dung-hill was quite a treat.

These latter cases may, perhaps, be classified under delusions of the nose, which are common among insane people.

There is no doubt that the sense of smell can be greatly cultivated, and that it is naturally very acute in some persons and species of animals. It was not imagination on the part of a lady that she could foretell storms by a sulphurous odor in the air, since she actually did foretell them.

Among the ancients, perfumes were used very extensively, not only in private life, but in religious service. It was supposed that odorous burnt sacrifices pleased the gods, who were always highly perfumed themselves, and might indeed be recognized by their fragrance. The awning which shielded the spectators from the sun in the amphitheatre at the Roman games, was saturated with scented water, which dripped on the heads of those below. The Roman eagles were always anointed with perfume before battle.

In later times perfumes have been very much in vogue, though now too much scent is regarded as a sign of vulgarity. Macame Talbea, coming from a bath of strawberry and raspberry juice, used to be gently rubbed with sponges of perfumed milk. Napoleon I. was in the habit of pouring eau-de-cologne over his head and shoulders every morning.

All pleasure must be bought at the expense of pain; the difference between false pleasure and true is just this: for the true, the price is paid before you enjoy it; for the false, afterward.

Olefiant Gas.

BY JAS. P. DUFFY.

Olefiant gas is a colorless, inflammable gas which burns with a bright, yellow flame, but possesses no smell. It is one of the products of the distillation of coal, when that operation is performed in the manufacture of "illuminating gas."

A more convenient method of obtaining it, however, and one attended with better results, is the following process:

Procure a glass flask capable of holding about one and a-half quarts. In it make, very cautiously, a mixture of two fluid ounces of concentrated sulphuric acid, and one of spirits of wine. When the heat produced by the mixture has subsided, connect the top of the flask by means of caout-choue tubing, with a small glass tube dipping into a glass jar containing water. To the stopper of the latter, a bent glass tube must be arranged so as to dip in the jar, care being taken to prevent its touching the water. The other end of the bent tube is to be connected with a jar for holding the gas.

After the connections have been made, the mixture will soon darken, and olefiant gas be given off; the latter will pass through the tubing to the water, which acts as a purifier, and thence to the gas jar.

Olefiant gas, though it possesses its own characteristics as a chemical element, can scarcely be regarded as such, its use being confined chiefly to analytical purposes. Its name is generally believed to have been derived from the affinity it possesses for chlorine. When the latter is brought into contact with it, a combination takes place, the result being an oily-looking fluid, which on account of having been first discovered by the "Chemist's Association" of Holland, received therefrom the name of *Dutch liquid*.

The following experiment will illustrate the manner of preparing the latter: Obtain a bottle of a quart capacity, and another of two quarts. Fill the former with chlorine gas, and half-fill the latter with olefiant gas. Then procure a deep porcelain dish of sufficient depth to enable the bottle to be inverted therein. Fill the dish with water, and invert under the water, the chlorine bottle in the olefiant gas. These gases will rapidly decrease in proportions, and soon form an oily liquid which will sink to the bottom of the dish, where it may be collected by carefully drawing off the water from above it. Purify the Dutch liquid so obtained, by shaking it in a bottle of sodium carbonate, and then pour it on a saucer. It will be found to possess the agreeable odor of chloroform.

A Mouse-Catching Baby.

A correspondent writing from Erie, Penn., says: "A singular phenomenon is just now creating a sensation a few miles south of this city, in the shape of a mouse-catching infant, surpassing in expertness the agility of the best canine or feline mouser in the country. The report of this singular freak of nature reached me so well authenticated that I concluded to gratify my curiosity and possibly be sold, as I had often been. But to my surprise, the facts turned out more remarkable than the report presented, and the most astonishing natural wonder I ever witnessed. The little girl is a trifle over a year old, and can but just begin to run about the house and yard. The moment she wakes and gets out of her crib she goes to the old kitchen fire-place, which is infested with a species of small house-mice, and sits down by a hole in the corner, very much like a cat, with her eyes intently fixed on the burrow. She sometimes occupies this position for an hour without moving, till a mouse makes his appearance, when by a sudden start, apparently without any effort, she seizes her victim by the neck. As soon as her prize is secured she seems to be electrified with joy, and trembles from head to foot, uttering a kind of wild murmur or growl, resembling the half-snarl of a wildcat. On arriving at the house, and making known the object of my visit, the mother expressed her willingness to give me an exhibition on the strange peculiarity of the baby, providing I would promise not to make their names public, as she seemed to dread the notoriety already given to the affair. I, of course, made the required promise, and had the privilege of witnessing with my own eyes a performance so wonderful and novel that I can never forget the impression

it made. The babe was asleep when I arrived, and on awakening she started at once on her strange mission. She is a beautiful little blonde, of delicate features and bright, blue eyes, and her hair lies all over her head in exquisitely-formed golden curls, about the circle of a dime. There is nothing unusual about the countenance of the child, or different from that of any pretty-featured baby except while stalking her game. Then her eyes become glistening and fixed, sparkling like gems, and her face and hands turn pale as wax, while she appears to hear or notice nothing going on around her, but keeps her eyes steadily centred on the burrow whence she expected her game to sally forth. The mother, an older sister of the child, and myself sat in a semi-circle around her, silent as if in a spiritual seance waiting for the signal of departed spirits. Had no mouse made his appearance, the sight was one never to be forgotten—the deathly-pale face of that motionless child, and the riveted, sparkling eyes concentrated for thirty minutes on that mouse-hole in the brick hearth. During that half hour we neither moved nor spoke above a whisper, when suddenly, like the springing of a trap, the little thing's hand went down on the hearth, followed by the fine squeak of the mouse, and that strange, low growl, and the singular tremor of the body of the child! As usual, she held the mouse by the neck, in her right hand, while it squirmed desperately to get away. She then pressed it up against her bosom, and felt it gently and softly with the other hand; then would dexterously change hands, carefully keeping her grip on the neck to avoid its bite, though her mother told me she had been frequently bitten; and while sensitive to pain and crying at the least ordinary hurt, she never was seen to wince or show the least pain from the bite of a mouse. I examined her fingers and found them scarred in many places where she had been bitten. I tried to realize how the feat had been accomplished, but it was done so suddenly there was no time to analyze it. Yet I was assured by the family, who had taken frequent observations, that the mouse when once out of its hole seems to become charmed or magnetized, and has no power, or at least shows no disposition to escape till caught, when it is too late. If any one approaches the child to take the mouse away from her, she will utter a shrill scream and then try to conceal her prize by putting it into her mouth.

"I have heard of snake and bird charming children, but I guess this is the first mouse-catching baby yet developed. I wonder how Darwin would explain this abnormal instinct by the laws of evolution and natural selection."

A Mother's Song.

A few years ago a company of Indians were captured on the Western frontier. Among them were a number of stolen children who had been with the savages for years. Word was sent throughout the region, inviting all who had lost children to come and see if among the little captives they could recognize their own. A long way off was a woman who had been robbed of her darlings—a boy and a girl. With mingled hope and fear she came; with throbbing heart she approached the group. They were strange to her. She came nearer, and with eyes filled with mother-love peered into their faces, one after another, but there was nothing in any that she could claim; nor was there anything in her to light up their cold faces. With the dull pain of despair at her heart she was turning away, when she paused, choked back the tears, and in soft, clear notes, began a simple song she used to sing her little ones of Jesus and heaven. Not a line was completed before a boy and girl sprang from the group, exclaiming "Mamma! mamma!" and she folded her lost ones to her bosom. So lives a mother's early influence in the hearts of her children.

An Economical Telegram.

Recently a telegraph clerk in France refused to transmit a message in these words: "Third Epistle of John, verses 13 and 14," under the law which forbids the transmission of despatches not written in plain language. Reference to the text indicates that the despatch was merely an economy of words: "I have many things to write, but I will not with ink and pen write unto thee; but I trust I shall shortly see thee, and we shall speak face to face."

In London in 1665.

BY JAMES K. FORSTER.

In the Vestry books of St. Botolph's, Aldgate, before the burials of 1665, there is written, by some apparently coeval hand, "This was the year of the great visitation." The vicar or parish clerk by whom this entry was made, evidently wished to remind posterity of the cause of so many deaths, that the year of the Great Plague might never be forgotten. The sights of London in 1665 must have been such as could be realized only by those who saw them.

"Is this lamentation never to end?" exclaimed Martha Steadman, as she came into Houndsditch one morning and saw the multitude of dead bodies carried into the churchyard of St. Botolph's, Aldgate. Martha lived in Whitechapel, and faithfully attended the sick wherever there was any hope of recovery. This morning she was hastening to a physician in Aldersgate, for a fresh supply of medicines, and all the way her mind was occupied with solemn thoughts of the dire calamity that had overtaken the city. Martha returned by Fenchurch street. She had not seen a human being since she left the doctor's, except a shivering woman standing in a corner at the Exchange, and a man tending a fire that was kept continually burning at Austin Friars. As she approached Aldgate she heard a voice speaking in accents of terror, and followed by moans of lamentations from people in deep distress. On turning into Aldgate she saw the people from whom the noise proceeded. The street was filled, some standing, others sitting on benches, and others lying on the ground, as if smitten by the terrible disease.

"What is it?" Martha exclaimed in a tone of interrogation mixed with wonder, as she came into the presence of the nearest person of the group.

"The day of the Lord is come," said an old man with a tremulous voice.

"Oh!" cried a young woman at the same time, "this is a day of wrath, of tribulation and anguish. The Lord is come to execute judgment in the earth."

"Truly," said Martha, "there is a harvest of wickedness;" yet she avoided the contagion of excitement, for, though a devout woman, she was no enthusiast.

"The day of the Lord is at hand," was thundered forth by a voice so powerful, and yet so terrible, that all other sounds died away in silence before the words were fully uttered. It was the voice of Solomon Eagle. Martha lifted her eyes and saw in the midst of the people a man stripped of clothing, but girded round the loins, and carrying burning coals on his head. "The day of the Lord is at hand," he cried again. "Vengeance is to be executed on the children of men. The smoke of their iniquities has gone up to heaven, and the vials of God's wrath are being poured out on the earth." Suddenly there was a shriek uttered by several women behind the preacher. A corpse was being carried to the churchyard, and the sight of the torch that preceded it, though now a familiar sight, raised a panic among some women already overcome with terror. "Weep and howl," shouted Solomon, "for the desolations of the earth. The land mourneth in the day of trouble and rebuke. Hushed is the voice of revelry, and silent the drunkard's song. The earth is being consumed by the breath of the Almighty. Repent and turn from your iniquities, that the arm of vengeance may be stayed, and that God may yet have mercy upon us."

Martha Steadman proceeded through Aldgate towards her house in Whitechapel. She had not time to listen longer to Solomon Eagle's terrible denunciations of Divine wrath. With some difficulty she managed to press through the people, and it was enough for her sympathetic nature to pass by so many sufferers, but the enthusiasm of Solomon Eagle seemed to make many forget the awfulness of their condition. The thought even that they were suffering judgment was occupation for their minds; and if it brought moments of terror, these were followed by a sense that after all they were in the hands of a God who, in the midst of wrath, remembers mercy. Martha Steadman had got to the outer circle of the congregation before she spoke to any one. She was bent on getting home, with all her might, when her attention was arrested by a pale-faced man standing in a door-way, but scarcely able to sustain himself on his feet. The plague-spot was on him, and a terrible dread had overwhelmed him. He was uttering the words of

Job, "Have mercy upon me, O ye my friends. Have pity upon me, for the hand of God hath touched me."

"Take a draught from this bottle," said Martha, producing the medicine. The man drank it greedily; but there was a plague-spot on his mind as well as on his body.

"Wrath! wrath! wrath!" he repeated, with all the energy he was able to command.

"Wrath, indeed," said Martha; "but the preacher whom you have just heard is an enthusiast. God has, indeed, cause to be angry with us, and we should learn lessons by His judgments. He will yet give us time for repentance."

"Enthusiast or no enthusiast," said the man, "he speaks the truth. My sins have found me out, and the wrath of God is revealed against all unrighteousness."

"Have you no home?" asked Martha.

"Alas!" said the man, "I have not. My house is in the next street, and there lie dead in it the bodies of my wife and four children. I stood by them all as they died, and when the last departed I came forth to wander in the streets. Just at that moment the man passed, and I heard his voice saying that judgment had begun, for the great day of wrath was come. I thought of my sins, and terror took hold upon me."

"But with Him there is mercy and forgiveness."

"Not for me," answered the plague-stricken man. "My sins are greater than I can bear; the punishment is heavy, but it is just."

Martha, by a few words, gained his confidence. He was able to drag himself along the street till they reached her house. She took him in, and left him resting on a chair till she went to see the sufferers for whom she had brought the medicine. She spent but little time by the way. In a quarter of an hour she was back to see the stranger. He had fallen into a deep sleep. She sat down by his side and began to conjecture what could be the history of a man who felt so terribly the arrows of the Almighty. As he slept he seemed to dream. His lips quivered as if he spoke. At last he uttered a groan, which was followed by the exclamation, "My sins! my sins!"

"Can you find no peace?" said Martha.

"Peace!" he answered, still half asleep and scarcely conscious of more than that he heard a voice. The word was uttered involuntarily, as if for a moment he had taken the name for the thing itself. Then coming out of his sleep and looking Martha in the face, he exclaimed, "There is no peace, saith my God, to the wicked."

"But it is written," Martha answered, "if the wicked man turn away from his wickedness and doeth that which is lawful and right, he shall save his soul alive."

"Good woman," said the man, "you have taken compassion upon me, but I am at the gates of hell, and must soon go down to the grave. But little that I do now can be of any avail. I have a secret to reveal, and until it is revealed rest is impossible. I have been a robber, and judgment pursues me without mercy."

"The dying thief was a robber," interposed Martha.

"But I have added treachery to robbery," said the man, "and I was a Christian in the eyes of the world. No one that knew me would have suspected me of such a crime as I have committed. I shall reveal it to you. I was in a good situation with a merchant in Lombard street when the plague began. My employer fled to the country, but gave me a year's wages until his return. I might have gone to the country too. Had I done so, I would have saved the lives of my family, and this still more terrible plague on my soul. But the clergyman at whose church I worshipped also determined to leave the city. My employer was his banker, and the clergyman was a trusted friend of my employer's, and knew where the money was concealed. He told me in what room I could find it, if I only knew how to get to the room. That was easy, as I was familiar with the house. I found the treasure, and took, as I was required to do, two hundred pounds. With this in my possession I began to think how easily I might keep it: 'London is deserted, and those who remain in it are too busy to trouble themselves about me. By the time the plague is gone, all who know anything of this money will probably be in another world.' And so I kept the money. I know not what became of the good minister, for he was indeed a good man. His words come often to my memory, and but for them I might never have felt the pangs of remorse."

Martha became deeply interested, and begged to know the sick man's name.

"My name," he answered, "is Joseph Jacob." "

"What!" said Martha, "Mr. Jacob that was manager to Mr. Bates of Lombard street?"

"The same," he answered, with a faltering tongue, "and our good minister was Mr. Steadman of St. Martin's, Orgar."

Martha Steadman heaved a deep sigh, and was silent. The sick man fell back fainting in his chair. She rose to help him and, by means of a cordial, he was soon restored to consciousness.

"I am dying," he exclaimed, "and hell is opening before me."

"That is but your imagination," said Martha; "while there is life there is hope, and it was said, emphatically, of Christ, 'This Man receiveth sinners.'"

"Oh, that God would forgive me!" the sick man exclaimed. Then, raising his eyes once more, he said, "Would that I could ask Mr. Steadman's forgiveness, and restore him his treasure!"

"Mr. Steadman," said Martha calmly, "is gone to the bosom of God. He was unable to leave the city for want of money, and was carried off by the plague."

The sick man groaned deeply.

"But," continued Martha, "I am his widow, and I forgive you, Mr. Jacob; God has provided for me as He provides for the ravens, and I am content to rest on His promise, that bread shall be given and water shall be sure. A thousand have fallen on my right hand, and ten thousand on my left, but the pestilence that walketh in darkness has not come nigh me."

"It is enough," said the sick man, and with an effort he was able to take from his pocket the two hundred pounds, and give them to Martha. "Now I know," he continued, "that verily there is a God that judgeth the earth."

The effort exhausted his strength. He fell back in the chair. Martha clasped his hands in hers and asked him, "Are you at peace?" He breathed his last as he repeated faintly Martha's word—Peace.

The Black Death.

BY J. J. WORTENDYKE.

Happily, most of those terrible diseases of ancient times, such as the Bible leprosy, the "black death," "red plague," and "black tongue," are no longer known among men. The last is thus recorded:

The first appearance in Europe of this unparalleled disease was at Constantinople, in 1347, whither it was brought from the northern coasts of the Black Sea. In January, 1348, it appeared in Germany and England; but it did not break out in that country until August, and it then advanced so slowly that a period of three months elapsed before it reached London. The north of Europe was attacked in 1349, but the pestilence did not reach Russia till 1351. It was highly contagious, and, as Hecker says, "the pestilential breath of the sick who spat blood caused a terrible contagion far and near; for even the vicinity of those who had fallen ill of the plague was certain death, so that parents abandoned their infected children, and all the ties of kindred were dissolved." The symptoms of this frightful disease were principally inflammatory boils and swellings of the glands, "such as break out in other febrile diseases," and patches all over the skin, whence it was called the black death." The disease was also accompanied by spitting or vomiting of blood, and those who were thus affected sometimes died immediately, but never lived more than two days. Toward the end of the plague many lives were saved by opening the boils. The mortality caused by this pestilence and its effects have now to be adverted to. The population of England and Wales at the beginning of the fourteenth century may probably have been about three or four millions, and of these there is but little doubt that more than one-half died of the pestilence. Parliament was from time to time prorogued, and proclamations issued bearing witness to its direful and increasing prevalence. On the 1st of January, 1349, Parliament was prorogued on account of the plague having broken out in Westminster. On the 18th of June, 1350, an important regulation relative to wages was made "because a great part of our people is dead of the plague."

The Skin.

The skin is the outer covering for the body, and protects the deeper tissues. It is also an excreting and absorbing organ, consisting of two layers, called the *derma*, or true skin, and the *epidermis*, or scarf-skin. In the true skin, which lies beneath the scarf-skin, are embedded the sweat-glands, hair-follicles, fat-glands, nerves, bloodvessels and lymphatic glands. The scarf-skin forms simply a defensive covering to the true skin beneath. It is marked by a network of furrows crossing each other, of various size, being largest in the flexures of the joints. Immediately between the scarf-skin and the true skin is what is called the pigment layer; this contains the cells which give to the individual his complexion, whether black or yellow, brunette or blonde. In the true skin are also the *papille*, which are very important little structures. They are little eminences, and form the principal part of the organ of touch; they are about 1-100 of an inch high, and about 1-250 of an inch broad at their base. Very sensitive to the touch are they, and especially numerous in the palms of the hands and the fingers, and the soles of the feet, the lips and tongue.

The hair follicle is the habitation of a hair, which it nourishes and protects. The fat glands are very necessary organs to the skin, containing the oily substances which lubricate and soften the skin. They are most abundant on the scalp, face, nose, mouth and external ear; but wholly wanting in the palms of the hands and soles of the feet. The largest fat gland is found in the eyelid, called the *Melbomian Gland*.

The sweat glands are the organs by which a large portion of the watery and gaseous materials are excreted by the skin. They exist in every part of the skin. In some parts they average nearly 3,000 to the square inch, presenting on the whole an evaporating surface to the body of about two miles and a half.

The skin everywhere is richly supplied with blood vessels and nerves, which give to it nourishment and sensitiveness.

Because of the intricate and wise construction of the skin, therefore, it stands to reason that every individual should be very careful how the skin is treated. It will bear much abuse, but sooner or later the health will suffer in consequence. The entire body needs to be rubbed and brushed daily, and washed two or three times a week, in order to facilitate excretion and absorption. A person whose whole body is well curried daily is seldom ill with bad liver, or headache or indigestion, or sleeplessness; and he is always running over with good cheer and genial friendship; nor will chapped hands and face (the unwelcome guests of cold weather) give him much cause for grief. Two miles and a half of pores to clean daily seems a great undertaking, but it pays better than to fee the doctor or undertaker, even once in a lifetime, because neglecting to do so.

Lamartine's Marriage.

The story of the marriage of Lamartine, the great French poet and statesman, is one of romantic interest. The lady was of an English family named Birch, and very wealthy. She first fell in love with the poet from reading his "Meditations Poetiques." She was slightly past the bloom of youth, but still young and fair. She read and re-read the "Meditations," and nursed the tender sentiment in secret. At length she saw Lamartine in Genoa, and her love became a part of her life. Not long after this she was made acquainted with the fact that the poet was suffering even to unhappiness from the embarrassed state of his pecuniary affairs. Miss Birch was not long in deciding upon her course. She would not allow the happiness of a lifetime to slip from her if she could prevent it. She wrote to the poet a frank and womanly letter, acknowledging her deep interest and profound respect, and offering him the bulk of her fortune, if he were willing to accept it. Of course Lamartine could not but suspect the truth. Deeply touched by her generosity, he called upon her, and found her to be not only fair to look upon, but a woman of a brilliantly literary and artistic education. He made an offer of his hand and heart, and was promptly and gladly accepted, and in after years Alfonso de Lamartine owed not more to his wife's wealth than to her sustaining love and inspiring enthusiasm.



Sights and Sounds in a Hammock.

BY JENNETTE GIBSON.

Did you ever in a hammock to the sky upturn your face;
See the raging storm clouds gather and the vivid lightning's
chase

Thro' the whelming gloomy vapors, by the wakened west-wind
blown;
Hearken to the rolling thunder roaring loudly thro' the dome?

Note the grandly mournful music of the wind's Æolian harp;
Now suppressed and now in fury, sweeping on in whirlwind
dark?

Watch the storm rise higher, blacker, in an awful solemn pile;
As you lie in silent wonder gazing wrapp'd in awe the while?

The very air confused and darkened, by the wayward winds
unfurld,
And the black clouds blown to bursting, overhead in tumult
whirl'd?
See the mighty, struggling tempest mass the swelling clouds
on high;
Tossing pearly floods of crystal—alert to leave an angry sky?

* * * * *

In a breezy porch a hammock wilefully entices me
To its luring, airy meshes by the sounding briny sea.
On the beach the baffled waters, rolling, foaming, dash and
break;
Restful lying, gently swinging, I am dreaming half awake.

Wearied from long toilsome hours in the busy, crowded town;
Shaded from the golden sun whose bright, tireless eye looks
down
On the hills and meadows sweet, where great drony cattle lie;
O'er sheltering trees where busy birds teach their tender young
to fly.

In odorous languor flowers droop—meekly bowing modest
heads;
Life of streams is drying up from low, rocky river beds;
A sultry hush rests on the earth, as if in earnest, silent prayer,
Each blade of grass, each thirsty plant, were seeking its kind
Creator's care—

To preserve its cherished life in the happy growing world:
"Send water—water from the skies, ere our tender leaves be
curl'd,
And lifeless lie our spreading roots, buried in the heated soil!"
See, weary farmers seek the shade—cease awhile from
onerous toil.

But, oh! behold the tranquil beauty of the beaming azure sky;
I behold but fleecy cloudlets, driven softly, floating by;
Reclining here 'mid earth and heaven, swinging dozily at rest;
Of this leafy bower so fragrant a becharmed and happy guest.

Burning rays athwart the foliage, shooting from the blazing
sun,
Peer in thro' Virginia Creeper when their rapid race is run.
Find me in my cosy hammock fondled by a gentle breeze,
Hearkening to the drone of insects and soft music from the
trees.

Soothed at length by gentle zephyr and the varied hum of
sound,
In old Morpheus' arms enfolded, I'm in peaceful slumber bound.
Slept one ne'er so sweetly, soundly—half hidden by the rust-
ling leaves;
Until suddenly awakened by the risen wind that grieves.

Comes a threatening cloud from westward, rising grandly
vast and deep,
O'er the summer sky unfurling with tumultuous sullen sweep.
Rattling wheels of volleying thunder, crash across the stormy
sky:
Crack the shadowy depths of darkness, send sharp scathing
lightning nigh.

Potent elements are warring on the earth and 'mid the clouds;
Comes a sound like fearful battle in a myriad angry crowds.
Stately trees fall rent asunder—stripped of verdure laden
branches;
Blinding dust and fallen leaflets, whirl aloft in airy dances.

Driving down come drenching torrents, boldly dashing over all;
Ne'er was such another tempest on this old revolving ball.
Swift streams running, earth absorbing, flowers drink refresh-
ing draughts;
Wildly plunging, sweeping onward, hark! the famished river
laughs!

Ah, there's a rift far over yonder—honest Sol is peeping through;
Sends a ray of gleaming sunshine just to say that he is true.
Sweet dame Nature smiling gaily, in the joy of being blest,
Sees her dotted hills and meadows all in freshened greenness
dressed.

Spindling rainbow full of promise, disentangles from the
clouds,
Glinting softly, giving solace to earth's eager watching crowds.
Untrammelled by the fallen showers, tinted clouds dissolve
and flee,
Vanish 'neath a warm horizon, bathing in a radiant sea.

As in nature, so in nations, hosts are rallied to the charge—
Blessings brought thro' fearful combat to the helpless world at
large.
Thus to save must wage the conflict—throb the pulses of the
storm,
Sometimes to subdue an evil—sometimes to purge out a wrong.

Vegetable Acids—Oxalic.

BY JAS. P. DUFFY.

There are six acids, familiar to the chemists, which on
account of their being the products of plants, are called
vegetable acids. Their names are, OXALIC, TARTARIC,
GALLIC, CITRIC, MALIC, and TANNIC. They are all, gen-
erally speaking, soluble in hot and cold water, with the
exception of gallic acid; they all possess a sour taste,
and with the aid of heat may be decomposed into other
acids.

The first mentioned vegetable acid, oxalic, is generally
prepared by the manufacturers of it in the following
manner:

Caustic potash and caustic soda are first made into
a strong solution by mixing the same with twice as much
water as soda and potash. Saw-dust is then mixed with
this solution until the mixture is converted into a thick
paste. The whole is then heated on iron plates. By
this means the woody fibre is converted into crystals of
oxalic acid, leaving the remainder as oxalates of sodium
and potash.

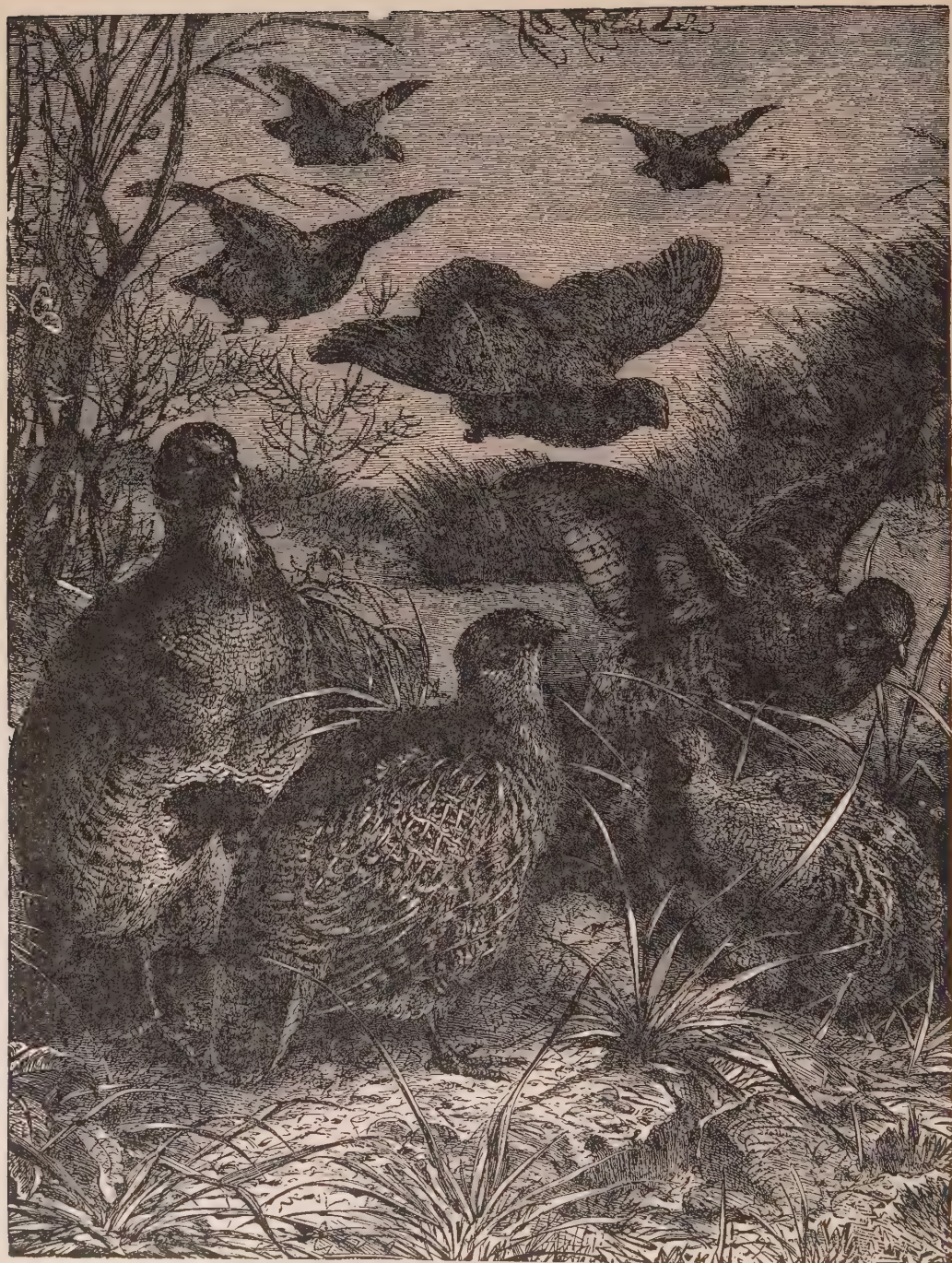
For experimental purposes, the acid is best produced
in the following manner:

Procure a glass flask, capable of holding a quart of
any liquid, in it make a mixture of seven fluid ounces
nitric acid, and one-thirtieth of an ounce of starch, and
heat the whole very gently. Dense nitric fumes will soon
arise from the mixture, which the experimenter should
be careful not to breathe. When the fumes begin to
subside, the solution must be removed to an evaporating
dish, and evaporated until it only occupies one-sixth of
its former bulk. The whole must then be cooled, and
the oxalic acid will be obtained in the form of transpar-
ent crystals.

The uses of oxalic acid are chiefly confined to analy-
tical purposes, although it is also sometimes used in
cleaning brass and copper articles, and in removing spots
of ink and iron rust from white cloth. The latter use
may be illustrated by the following experiment:

Immerse some white cloth in writing ink, and allow it
to dry. Make a solution of thirty-eight grains of oxalic
acid and two ounces of water, and dip the cloth in the
solution. Now, rinse the cloth in clear water, and traces
of the ink will disappear. The cause of this lies in the
fact that the ink owes its color to a tannate of iron; the
acid destroys this, and forms with it a chemical com-
bination which the water dissolves.

The various other vegetable acids, will be taken up
and described in future articles.



A COVEY OF PARTRIDGES.

PARTRIDGES AND QUAILS.

Partridge is the popular name of the family of *Perdidae*, which includes also the quails. They differ from the grouse in having the legs bare and the nostrils protected by a naked hard scale; they are also smaller in size, and more numerous in species; the head seldom has a naked space round the eyes, and the sides of the ties hardly pectinated; they are widely distributed over the globe, but the true partridges, or *perdidae*, have no representatives in America. Great confusion exists in the application of the term partridge; the spruce partridge is the Canada grouse, (*tetrao Canadensis*, Linn); the partridge of New England is the ruffed grouse, (*bonasa umbellus* Steph.); the partridge of the Middle and Southern States is the quail (*artyx Virginianus*, Bonap.), and several other quails are called partridges, as the plumed and Gambel's of California; the scaled or blue, and the Massena of the valley of the Rio Grande, in Texas; on the other hand, the birds called quails in Europe belong to the partridges and to the genus *coturnix* (Mohr).

Few birds are more solicitous in rearing their young than the partridge, and many are the stratagems which the parents will practice to draw off attention from the brood, which by signal notes is scattered or recalled. They devote themselves to their little ones, run about with them, teach them to find their favorite ants' eggs and grubs, and should a sportsman or a dog appear, the startled father-bird utters a cry of warning, upon which the mother hastily gathers her family together, and scrambles off with them as fast as she can, while the father gives pitiful little chirps as though he were hurt, droops his wing, and flies limpingly from place to place as though wounded. When he thinks all is safe he suddenly darts off, and joins his dear ones in a place of security. But one kind of enemy he can not fly from—this is the falcon-vulture, or sparrowhawk. If one appears the partridges appear struck with terror, and never attempt to stir or to hide, but allow themselves to be killed without making the least resistance. Seeing this, some people kill them by fastening an artificial bird of the kind to the tail of a kite, which is flown over them. The frightened bird stop still, staring at it while the hunters advance and shoot them.

Marwick says: "Once, in particular, I saw a remarkable instance of solicitude in the old bird to save its young. As I was hunting with a young pointer, the dog ran on a brood of very small partridges; the old bird cried, fluttered, and ran trembling along just before the dog's nose, till she had drawn him to a considerable distance, when she took wing and flew still farther off, but not out of the field. On this the dog returned to me, near her place where the young ones lay concealed in the grass. This, the old bird no sooner perceived that she flew back again to us, settled just before the dog's nose, and by rolling and tumbling about again, drew off his attention from the young, and thus preserved her brood a second time. I have also seen when a kite has been hovering over a covey of young partridges, the old birds fly up at the bird of prey screaming and fighting with all their might to preserve their little ones."

Selby mentions a well authenticated instance, in which two partridges, in defense of their brood, gave battle to a carrion crow, and actually held the miscreant till taken away from them by the spectator of the scene.

The facility with which the young secrete themselves is most surprising. Parker Gilmore says: "Frequently have I got unexpectedly into the centre

of a family, when up they would rise like a flight of bees, and as rapidly drop again; certainly you see the exact spot on which they have alighted—that tuft of grass you believe most surely contains one, but search as you will, turn over carefully every blade, look well about the roots—all is useless, for no fledgling will you discover.

Except during the breeding season, partridges associate in flocks, or coveys.

"Caught in the meshy snare, in vain they beat
Their idle wings, entangled more and more.
Nor on the surges of the boundless air,
Though borne triumphant, are they safe;
Glanced just and sudden from the fowler's eye,
The gun o'ertakes their sounding pinions, and again
Immediate brings them from the towering wing,
Dead to the ground, or drives them wide, dispersed,
Wounded, and whirling various, down the wind."

So rapid, however, is the multiplication of the partridge as almost to defy extermination; nor will persecution drive it from its haunts. The covey will rise, whirl about, and alight again and again; but though they may be diminished by the gun, the survivors will often continue in the same turnip-field, or on the same clover-stubble, as pertinaciously as a mountain tribe has clung to their mountain fastnesses, in a war of extirpation.

These birds feed early in the morning and late in the evening, the covey resting during the day among the herbage, or basking on dry banks, or like the fowl, dusting their plumage and cleaning their feathers. At night they generally choose the middle of a large field as their roosting place, and sit crowded together. The call of the partridge is usually heard before the covey retire to rest; they answer each other, and thus the stragglers are collected.

On the esteem in which this partridge is held for its flesh we need not expatiate. An old distich says:

"If partridge had the woodcock's thigh
"Twould be the best bird ere did fly."

Mrs. Reese H. Killian, of Honeybrook, N. Y., is the proud owner of three partridges, who have learned to know her and her husband so well as to have become perfectly tame—a result considered impossible by many. These three birds Mrs. Killian has had the care of ever since they were hatched, which was in August last. All through the winter she fed and protected them, and consequently they have come to love the hand that fed them. During the winter they always slept together under the stove, finding that the warmest place, and were an amusing curiosity to the neighbors who came to see them. The hanging basket was also a favorite roost. Now when spring has come they fly about the yard picking food on the ground which they would not touch with their feet when the snow lay upon it. They watch their master and mistress' movements about the premises with eager eye, as if they were loth to lose sight of them. They keep up a constant whistling, after "Mordecai," who appears to be their cry. They don't seem to have any desire to fly off and join their wild brothers and sisters, but apparently consider their company degrading, their own refined education and bringing up teaching them so. Mrs. Killian thinks she has three pets to be proud of, and we agree with her.

The gray partridge of India is often reared in captivity by the natives. They admire its shrill cackle as much as we should the sweetest notes of a nightingale; and, besides, it is a first rate fighter, and affords nearly as much diversion in that way as a game-cock. It is a hardy bird, and becomes bold and familiar, like the chuckore, sparring at people's legs, and flying at cats, dogs and children. It feeds on rice and all kinds of grain, to which insects, especially white ants, should be occasionally added, to correct costiveness. The pugnacious disposition of this bird renders it one of the easiest of all game to catch, and there is hardly a village in the wilder parts of Upper and Western Bengal where this amusement is not carried on. For this purpose a tame one is placed in a small cage covered with strong horsehair nooses, and carried out of an evening or morning to the jungle. On arriving at a likely spot the fowler blows two or three times upon the bird in the cage, an act which has the invariable effect of rousing the

little captive to fury. It answers every puff by a shrill cry, and in a moment or so goes off into a paroxysm of rage and defiance, screaming and cackling challenges to all comers, in which state it is placed on the ground, dancing about in its cage, while the fowler retires behind some neighboring bush to watch operations. The decoy bird's calls have been answered all round the coppice by the time its master is hidden, and ere long an exceedingly diverting scene, which I have more than once witnessed in Singbloom, ensues. One by one the wild cock birds, whose crows have been audible nearer and nearer, emerge from the covert, head up, wings down, and tails spread, and, after showing off in a species of war dance before the cage, the nearest rushes at it with a charge that would send it rolling off the scene were it not securely pegged to the ground. The bird within and the bird without engage furiously, *a la* Pyramus and Thisbe—but with kicks instead of kisses—through the intervening wall, till after a few interchanges of this nature, the assailant finds himself fast by the leg in one of the nooses. The fowler runs out, detaches the captive, and retreats with it to his ambuscade, whereupon other wild birds, which have been scared away at sight of the man, quickly reassemble, and the same scene is enacted with another champion, and so on, *ad caput*, till the whole are secured or until the decoy bird has become exhausted and sulky.

The quail is much smaller than the partridge proper—but resembles that bird in its form and modes of life. There are about a dozen species found in North and Central America and in the West Indies. The common quail, or Bob White, (*Oryz Virginianus* Bonap.), is about ten inches long, with an alar extent of fifteen; the general color above is brownish red, especially on the wing coverts, tinged with gray; chin, throat, forehead, and line through the eyes and along the sides of the neck, white; a black band across the top of the head.

It takes to trees when alarmed, a flock dispersing in all directions and afterward coming together at the call of the leader.

The males are very pugnacious, and in the breeding season utter the well known notes, "Ah, Bob White," the first syllable rather low, but the others loud and clear; by some these notes are thought to resemble "more wet," and are therefore regarded as omens of rainy weather.

"Whistles the quail from the covert,
Whistles with all his might,
High and shrill, day after day,
"Children, tell me, what does he say?"
Gins—(the little one, bold and bright,
Sure that he understands aright)—
He says, 'Bob White! Bob White!'

"Calls the quail from the cornfield,
Thick with its stubble set;
Misty rain clouds floating by
Hide the blue of the August sky.
'What does he call, now, loud and plain?'
Gold Locks—'That is a sign of rain!'
He calls, 'More wet! more wet!'

"Pipes the quail from the fence-top,
Perched there full in sight,
Quaint and trim, with quick, bright eye,
Almost too round and plump to fly,
Whistling, calling, piping clear,
'What does / think he says? My dear,'
He says, 'Do right! do right!'

Parker Gillmore says of the common American quail: "If justifiable to envy your neighbors the possession of anything, I think the sportsman who has killed this game must often have wished in his heart that it was abundant in England. In my opinion there is no bird more worthy of attention, and none deserving of the honor of introduction to any land, than the American ortyx. It weighs from eight to ten ounces, is erect in its walk, very handsome in plumage, strong upon the wing, feeds principally upon grain, grass-seed, and ants, frequents indifferently brush, timber, or open country, is capable of standing cold, is not quarrelsome with other game, and is very prolific, frequently hatching two broods in a season.

"As a table delicacy I know no greater; for weeks I have constantly had them at both breakfast and dinner, still without becoming satiated, and there are very few varieties of game could stand a more severe test. Their note or call is remarkably melodious, and in the spring or pairing time, when they are numerous, you can hear their sweet voice all day long, and in every direction. I have always regretted that no one introduced this little stranger in sufficient quantities to guarantee the experiment a fair trial."

This bird is universally scattered over the United States east of the Rocky Mountains, where cultivation exists, although most abundant in Maryland and Virginia.

When statistics show that a pig can live thirteen days without food or drink, farmers are foolish to feed them so often. Yes, sir; it's a pig blunder.

LEARN in youth, if you can, that happiness is not outside, but inside. A good heart and a clear conscience bring happiness, which no riches and no circumstances alone ever do.

The Last of the Incas.

In the course of an extensive tour through the interior of South America, during the past year, I visited Cuzco. That city, renowned as the capital of the Inca Empire, and the limit of the conquests of Pizarro, is among the most interesting places I have seen in any part of the world. The extreme difficulty of reaching it, owing to its distance from the coast, and the lofty chain of Andes intervening, appears to be the chief reason that this celebrated city is so little known to our countrymen. It abounds in stupendous monuments of art, attesting a civilization quite equal, if not superior to that of the Aztecs. But, amid these remains of ancient days, there exists a living relic of the past, some short notice of whom may be interesting.

The venerable Doctor Don Justo Sahánvauri, a canon of the Cathedral of Cuzco, and now more than ninety years of age, claims to be a lineal descendant in the seventh degree from Huyaana Caipac, the last reigning Inca, and father of the ill-fated Atahualpha, burnt alive by the conquerors in the plaza of Caxamarca. The evidence of his claims appears to me to be conclusive, so that in this man we see the last of the royal race of Incas, as no others of unmixed blood are known to exist. He is a man of learning, and quite distinguished in the history of his country—having personally received the thanks of Bolívar at the close of the war of Independence for his services in the cause of Liberty.

A clerical friend took me to the old man's house. We found him reading Tasso in his garden; a secluded spot just under the walls of the great Temple of the Sun, where his ancestors, as High Priests of the Sun, and hereditary Lords of Peru, once officiated at the altar in the grand and imposing worship of the "Children of the Sun." He received us very affably, and showed me many matters of interest about his house. He conversed more intelligently than is usual with Peruvians of the interior, concerning "El Grande Republica del Norte," as he called the United States, and appeared much interested in the slight sketch of our political system, which he requested me to give him. He had many questions to ask: who was President, and who would be the next President?

He is a fine looking man, with a physiognomy quite different from that of the Quecha Indians (the race peopling this part of Peru); having a high forehead, large, regular features, and an intelligent eye. A paralytic stroke about two years ago deprived him of the power of writing, except early in the morning, when he can sign his name.

His son acts as his amanuensis. He always affixes the word Inca to his name. The seal of his letters bears the arms granted by Charles V. to his family in 1544. The original letters patent are carefully preserved in his library.

A Pathetic Incident.

At one of the schools in St. Louis, numbers of the pupils were in the habit of bringing luncheon with them, which at noon they ate together. Among those who did not go home for dinner, the teacher in a particular room noticed a little girl who always sat looking wistfully at her playmates when they went out with their luncheon, but who never brought any herself. The child was neatly but very plainly clad, and the closest student in school hours. This odd action of the child lasted for some time when one day the teacher noticed that the little thing had apparently brought her dinner. The noon hour came, and the children took their lunch as usual and went out to eat it, the little girl referred to alone remaining in the room, with her dinner wrapped up in a paper on the desk before her. The teacher advanced to the child, and asked her why she did not go out to eat with the rest, at the same time putting out her hand toward the package on the desk. Quick as thought the girl clasped her hands over it, and exclaimed, sobbing, "Don't touch it, teacher; and don't tell, please! it's only blocks." And that was a fact. Having no dinner to bring, and being too proud to reveal the poverty of her family, the child had carefully wrapped up a number of small blocks in paper, and brought the package to present the appearance of a lunch. It was nothing—a mere ridiculous incident in school life; but it was sufficient to make older and wiser heads than hers feel sad.

Fashions in Greenland.

To one ignorant of the style of dress of the Greenlanders and the similarity of the dress of both sexes, it would be difficult to distinguish the man from the woman. The man combs his hair straight down and over his forehead, only parting it sufficiently to enable him to see directly ahead of him, while the woman combs her hair in a long plait, forming it into a knot on top of the head, which is elevated about four inches from the scalp and tied with a strip of ribbon, either of black, blue, or red color—the widow being distinguished by a black ribbon, the wife by the blue, and the maiden by the red one. The complexion is coppery, like that of the Indian, their hair black and their nose flat, while their cheek-bones are broad and prominent, nearly hiding the nasal appendage when the profile is presented. The kapetab or jumper, with hood attachment, is worn by both sexes, the hood of the woman's being made larger, in which to carry the young babe, is of sealskin with trimmings of dogskin. The pantaloons and boots are also worn by both sexes, those of the women being in most cases very elaborately and artistically trimmed. The pantaloons of the women reach only to the knee, while the boots, made of finely tanned sealskin, nicely crimped and sewed with the sinews of the deer, make them look comfortable.

Carbonic Acid.

BY JAS. P. DUFFY.

CARBONIC ACID is a transparent, colorless gas, which, at ordinary temperature, possesses a slightly acid taste and smell. It is obtained from substances called *carbonates*, and among these are marble, limestone and chalk, the acid being produced by either subjecting them to the influence of strong chemicals, or by strongly heating them.

Experiment.—Procure a wide-mouthed bottle with a bent tube attached to the cork in such a manner that it will just enter the bottle about two inches, and be long enough and of the requisite shape (somewhat like the figure 7) to enter and nearly touch the bottom of another open-mouthed bottle known as a battery jar. Now introduce into the bottle a quantity of either marble or chalk in small pieces, but not powdered; on this pour a little hydrochloric acid, and add twice as much water, so as to half fill the bottle. Then fit in the bent tube. The acid will take the lime away from the marble, and the gas will pass into and fill the jar. The gas is very heavy and will not escape until the jar is full. At this time a piece of card or stiff paper may be placed over the vessel to prevent the action of the currents of air.

As the acid is the product of the combustion of the carbon present in the chalk or marble, it is therefore combustible, and is also incapable of supporting combustion and animal life. The first fact may be proved by dipping a lighted taper in the jar, when it will be immediately extinguished. That carbonic acid is produced from the combustion of charcoal is obvious; and the fact that its burning in a close room has been used for suicidal purposes, is sufficient proof of the fact that carbonic acid is incapable of supporting animal life.

It is soluble in water, but increased solubility is prevented when it is subjected to pressure. Water thus surcharged with it possesses an agreeable taste, effervesces briskly when the pressure is removed and is sold under the name of soda water, though in reality it does not possess or contain any soda. Being an exceedingly weak acid, it is produced during the decay of all animal and vegetable substances. During fermentation it is evolved in large quantities, and it is continually given off during the breathing of animals.

HEROISM is rarely understood to be simply uncompromised duty. Heroism which is not duty is but a dream of the dark ages. Duty that is not performed with the spirit of a hero is but the mortar and brick of hard bondage. In the daily walks of life, unseen and unadmired, there may exist the truest heroic elements, and all may find, if they dare choose, a glorious life and grave in the sphere of commonplace duty.

TURTLES dig holes in the sea shore and bury their eggs, covering them up to be hatched by the sun. Lobsters are very pugnacious, and fight severe battles. If they lose a claw another grows out.

Early Marriages.

BY ROSA V. RALSTON.

The universal idea that one should always embrace the first opportunity to engage in anything desirable, does not hold good as regards marriage. We can but note with regret the extremely early age at which the obligations of matrimony are assumed by some of the young people of the present age. Scarcely have they entered the threshold of manhood and womanhood before they launch their craft out into the broad sea of life, where it is hard to steer aright at best, and with the increasing cares of a household, begin their career with no guide but ignorance and no helmsman but inexperience. Just at this age when their characters are being formed, and correct views of the philosophy of life are being imbibed, which is necessarily a slow process, it is a great error to crowd the mind with the altogether new responsibilities of husband and wife. They know nothing of the foibles and follies and variability of human nature. And without this knowledge, if they have gone through the entire course of book cramming in our schools and colleges, it is impossible that either should know how to bear with the weakness of the other, or to analyze the dispositions of their offspring, and train and cultivate the infant mind as it gradually unfolds itself. They are apt to view life through the rose-tinted lens of the nursery, where they have been accustomed to have every desire gratified, and some one to shield them from the coldness of the world; so it seems harder for them to practice self-denial and to think and act for themselves.

If the husband has arrived at maturity, and the wife be his juror by several years, the disadvantage is doubly on her side. Besides her own inexperience to combat, she has the exactness and precision of his more mature judgment to counteract. It rarely happens that a man regards the opinion of a child-wife after the romance of matrimony has worn off. Once impressed with her lack of knowledge, he is apt to go through life with the impression, no matter what may be the subsequent increase of her store from experience and observation. At first she is a toy, a petted plaything, then a mere drudge, but never a helpmeet and bosom companion upon whom he can always rely, and of whom he can seek counsel in time of need. The estimation which a husband puts upon the intrinsic worth of a wife between the ages of sixteen and twenty-five is as one to two according as the years increase. When he marries her in the full bloom of her maturity, he is never fearful that she will commit some egregious blunder through sheer ignorance, or that she will, for want of a little care and attention, overwhelm him with a sea of troubles and difficulties. It might therefore, be safely asserted that one-half of the ill-formed unions now existing is the result of the extreme haste of young people to get married at an age when they are entirely incapable of choosing a companion for life.

The Bell Family.

Members of this family are now found and used in every civilized country; in cities, towns, churches, prisons, palaces, hotels, and on board of every ship. They vary in stature, bulk and speech; there is the dwarf, with its little, tinkling voice, and the giant, with its loud tones, that would nearly stun you. Their employments also are varied—they call people to church, ring merrily at marriages, at Christmas, and other joyful times; sound mournfully at funerals, summon people to railway trains, announce the arrival of visitors, and are often rung impatiently by masters and mistresses to call their servants. Bells were first heard of in the Book of Exodus; they were made of gold, and were very small, they were fastened to the blue vestment which the high priest wore when attending to religious duties. The Romans put bells on their sheep and horses, which was first done to frighten away wild beasts and to enable the owners to find them more easily when they wandered away. It was not until this century that bell-hanging was introduced into the rooms of houses. It is supposed that long before bells were known in Europe they were used in Hindoo temples for the purpose of frightening away evil spirits. It is believed that Paulinus, Bishop of Nola, in Campania, first invented bells in the year 400; they were first used in churches in A. D. 900.



COQUETTE'S ROSE.

BY REA.

We two have spent some happy days
By brooklet, stream, and fountain;
We two have trodden rocky ways,
And climbed a misty mountain.
And we have whispered soft and low
Many a time together,
And thought it very sweet to go
And seek for fern and heather.
And once you found a pale white rose—
I shall forget it never—
And said some words my heart well knows,
For ever and for ever.

II.

I used to think you very fair,
And oh! so very simple,
Because you had a childlike air
And such a saucy dimple!
I used to think you loved the birds
And lived among the flowers,
And that you meant the whispered words
You said in twilight hours.
And oh! I thought you would be true,
Although you were so never;
And yet I will be true to you
For ever and for ever.

III.

I wonder if you quite forget
The days we spent together,
Or if you think with vague regret
Of tangled grass and heather.
I wonder if your eyes are still
As blue as when we parted—
I saw them turn away and fill,
And thought you broken-hearted.
Ah well! you were a sad coquette,
But I'll forget you never;
I'll keep your rose ('tis treasured yet)
For ever and for ever.

Every one should know that hot water will restore cut flowers that are faded by being worn on the dress or carried in the hand. Cut half an inch from the end of the stem, and put it directly into boiling water; the petals will smooth and resume their beauty in a few minutes. Colored flowers will revive most perfectly, for white flowers are inclined to curl and turn yellow. The thickest textured flowers will be restored the most wonderfully. Flowers will keep fresh after this treatment almost as long they would have done if freshly gathered.

French and English Manners.

A number of years ago, two Scotch ladies paid a visit to Paris, accompanied by their brother, whose business led him to go thither every year. He was slightly acquainted with several Parisian families, but, not speaking French fluently, he had little domestic intercourse with them. The two Misses D—, on their arrival, expected that their brother's acquaintances would call on them, as they had been aware of their arrival; but not a soul came near them. They did not know that in France the etiquette is for the stranger to call first—precisely the reverse of what is the practice in England; besides which, they were ignorant of the fact, that the French generally do not cultivate the acquaintance of foreigners, and rarely give them invitations to their houses.

Receiving no attentions, the ladies found Paris to be rather dull, their only amusement being sight-seeing. One day, walking with their brother in the Champs-Élysées, he introduced them to a lady whom they chanced to meet. Taking pity on their isolation, she invited them to dine with her on the following day. The lady carved small pieces of each dish, and put them on a plate with a fork, which was handed round to each guest to help themselves. The Scotch ladies, accustomed to eat potatoes with every dish, were puzzled to find none forthcoming. After the meat, came a dish of green peas, and the salad. The French use the same knife and fork for every dish, and keep them when their plates are changed; and the Misses D— were horrified to see that the servant who took their plates, coolly put their knife and fork on to the cloth beside them, and did not give them a clean one until the dessert was served. They were greatly perplexed by the variety of dishes served, the absence of potatoes, and the arrival of green peas after the meat had been taken away! The dinner was good, but the oddity of the arrangement was incomprehensible. It was a violation of all ordinary conceptions. After dinner the gentlemen led the ladies back to the drawing room, and *café noir* was served. Strong black coffee, without milk or cream, was not very palatable to the Scotch ladies, though they found the *liqueurs* which succeeded it—*crème de moka* and *crème de vanille*—excellent.

After sitting chatting for about half an hour, the hostess astonished the Misses D— by announcing her intention of going for a walk, it being Summer and the days long. The Scotch ladies were too shy and too little accustomed to converse in French to ask for explanations, but they thought the lady very rude to turn them out of her house in this cool way; they had not ordered their carriage until 10½, so they begged her to allow her servants to fetch one of them, and returned to their hotel marveling at the unmannerly impudence of French ladies.

In France, there are generally only two meals a day; *dejeuner*, consisting of hot or cold meat, vegetables, dessert, wine, concluding with a cup of *café au lait*; this is usually served about 10 or 11, and there is no other meal until dinner, about 7. Some people have a cup of coffee and a roll brought to them in their rooms early in the morning, but this is by no means general. The two Scotch ladies returned home with a poor opinion of French people and French manners; the truth being that they made no allowance for a perfectly agreeable state of things different from that to which they had been accustomed.

Franklin's Simple Language.

Tradition has it, that when Benjamin Franklin was a lad, he began to study philosophy, and soon began applying technical names to common objects. One evening when he mentioned to his father that he had swallowed some acephalous mollusks, the old man was much alarmed, and suddenly seizing him, called loudly for help. Mrs. Franklin came with warm water, and the hired man rushed in with the garden pump. They forced half a gallon down Benjamin's throat, then held him by the heels over the edge of the porch and shook him, while the old man said: "If we don't get them things out of Benny he will be pizened, sure." When they were out, and Benjamin explained that the articles eaten were oysters, he received a whipping for frightening his parents. He then formed a resolution to ever afterward convey his thoughts in the simplest language possible.

The Last Discovery.

There really seems to be no end to the marvels of nature. The last one which turned up is called "the living drill." It is a worm, as big around as a pipe-stem, and about five inches long, which bores into the hardest rock with surprising facility. So far as yet heard from, "the living drill" is a native of Berks County, Pennsylvania. It is reported that it has long been known to the people of that county, but they, good, honest souls, have never considered it of any account. But at last the eye of science has lighted upon this iron-clad worm, and it now comes to the front. If it can only be raised in large numbers, it is thought by some enthusiastic persons, that it may drive patent drills out of the market. The patentees of drills must be looked after, or they may take steps to extinguish this vermin which threatens to bring their inventions to naught.

When we think of the Darwinian theory, and "the survival of the fittest," and the "doctrine of progression," the imagination is dazed at the possibilities which this "living drill" foreshadows. Who knows but what we may have these creatures developed to the size of anacondas, with a boring power which might honeycomb the earth itself?

Farmers' Life in Winter.

Probably no one of the industrial classes has been so directly, and we may say disastrously, influenced by modern innovations and changes as farmers, and this relates specially to winter life and pursuits of this class. The active work of farmers and their families was not in any degree suspended in winter until within a period of a third of a century. Indeed, the hardest labor of the year was performed by them in cold weather; they no more thought of housing themselves when the snows came than of living by begging or stealing. The country was comparatively new, and there were clearings to be made, logs to be cut, wood to be hauled, stone walls to be built (for many of our common field walls were put up in the dead of winter); the ways were to be kept clear of snow obstructions; corn was to be shelled and taken long distances to the mill; the cows, oxen, horses, and sheep were to be fed, and the pigs looked after.

There were no idle hours for the farmers of a generation ago in winter; and the same may be said of the women and children in-doors. All was hurry in the kitchen from early daylight to sunset; and when the evening darkness came on, the knitting, spinning, darning, and patching continued until eight or nine o'clock, when all went tired to bed. The clothing worn by the family was of domestic make, fabrics of linen as well as of wool. The wool was taken from the backs of the sheep, scoured, carded, spun, woven, and dyed, on the farm premises. The bark of the butternut afforded a favorite tint of yellow-brown; and chipped logwood and copperas, bought of the distant grocer, gave the inky black suited to garments for Sunday use. The hum of industry never ceased in the dwellings of the earlier race of farmers, except at night and on "Lord's Day." And they were happy, healthy, contented; but little money was needed, they had few artificial wants, and their ambition was confined to the narrow limits of their homesteads.

But a great change has occurred, and now farmers have become, so far as winter life is concerned, a kind of hibernating animal, like the bears and frogs in the woods and marshes. Coal has taken the place of wood to a large extent even in the country, so there is little chopping to be done; there are no walls to be built, no heavy timber to haul, but little corn to husk or shell, few sheep and cows to feed, and but little marketing to do. When the first snow-storm spreads its white mantle over the face of mother earth, all is hushed and silent around most of our farm homesteads. The crowing of a solitary cock, perched upon the barnyard fence, seems to be almost a painful intrusion upon the general silence. As regards the family, the boys are not seen around the chopping-block, or on the hay-mow; the girls are seldom seen at the windows with their knitting work, or in the snow path leading to the barn, with milk-pail in hand. The boys are away at school, or serving as clerks in some city store; the girls, if at home, sit listlessly about the red-hot parlor stove, discontented, lonely, with "nothing to do." And really, there is very little they can do; there is no wool to card or spin, no flax to

run into threads, no industrial labor that will give them even a small return in ready money. The large factories do all the spinning and weaving, and make all the bonnets, stockings, and under and outer garments; and willing hands in isolated homes find no remunerative employment. The great want of the age is some industrial labor which can be performed at farm homesteads, and in the dwellings of the poor, so that a little money can be earned at home. In the progress of events, we have the expectation that some new avenues of industry will be opened in this direction, and when this occurs a blessing will rest upon thousands of happy homes.

The discouraged state in which large numbers of our farmers live is not favorable to health or happiness; neither is it favorable to success in any direction. Winter in the country, in New England and the other Northern States, is really quite a severe ordeal to pass through; but it can be made a time for mind improvement, and also a time of preparation for the active labors of the summer. Every good and useful paper or book a farmer reads is an acquisition, the value of which cannot be stated in dollars and cents. Winter is the time to improve the intellect, the time to lay up those stores of knowledge which will serve in old age, when the eyes are dim and the hearing impaired, as food for thought and meditation. In the altered condition of things which prevails in this age, farmers must seek new modes of occupation in winter.

Salutations.

The Hebrew salutation was "Peace" and the Greeks, "Rejoice!" The moderns use the form "What doest thou?" In Germany, "How do you find yourself?" and in some parts of the country they invariably kiss the hands of the ladies of their acquaintance with whom they meet. In Spain, "How goes it?" and Spanish grandees wear their hats in the presence of the sovereign, to show they are not so much subjected to him as the rest of the nation. When the royal carriage passes it is the rule to throw open the cloak, to show that the person is unarmed. In the West Indies the negroes say "Have you had a good sleep?" The Pelew Islanders seize the foot of the person they desire to salute, and rub their faces with it; and New Guinea people place on their heads leaves of trees as emblems of peace and friendship. In the sickly districts of Egypt, where fevers are common and dangerous, they salute by saying, "How goes the perspiration?" "Do you sweat copiously?" "Is it well with you?" and the inhabitants kiss the back of a superior's hand, and, as an extra civility, the palm also. Chinese salutations are very peculiar. Of equals they inquire, "Have you eaten your rice?" "Is your stomach in order?" and "Thanks to your abundant felicity." The Turks cross their hands, place them on their breasts, and bow, exclaiming "Be under the care of God." "Forget me not in thy prayers." "Thy visits are as rare as fine days!" an ancient greeting, as it is by no means applicable to their present country. The Romans, in ancient times, exclaimed, "What doest thou?" "Be strong," or "Be healthy," when it was customary to take children up by the ears and kiss them. Italians, on meeting, kiss the hands of ladies to whom they are related, with the strange inquiry, "How does she stand?" Persians salute by inclining neck over neck, and then cheek to cheek, with the extravagant greeting, "Is thy exalted high position good?" "May thy shadow never be less," and "Peace be upon thee." In Poland, the inhabitants bow to the ground, with the significant inquiry, "Art thou gay?" or "How hast thou thyself?" Russian ladies permit not only their hands but foreheads to be kissed by friends. The men salute by inquiring "How do you live on?" "Be well," and a common exclamation, which means literally, "God be with you," has degenerated of late years, into the opposite—"Devil take you!" The Hollanders, with their proverbial love of good living, salute their friends by asking, "How do you fare?" "Have you had a good dinner?" Laplanders, when they meet on the ice, press their noses firmly together. Bengalese call themselves the "most humble slaves" of those they wish to salute. Bohemians kiss the garments of persons whom they wish to honor. Siamese prostrate themselves before superiors, when a servant examines whether they have been eating anything offensive. If so, they are kicked out; if not they are picked up.

Interest and Perseverance.

For success is every human being striving. "How shall it be reached?" is the deepest problem of each man's life. But the grandest problems are ever enveloped in the deepest mystery; and the true answer of this question will lead us to earth's most coveted places. Man sees thousands above him who have already reached the goal he hopes to attain. He may endeavor to look back upon their foot-prints; and though he sees many of their helps and hindrances, he can not know of the silent inner struggles of these lives, or of the most circuitous windings of their pathways. Could he know, it would be no criterion by which to guide his footsteps. For each one of us has an obstacle to surmount, unlike any ever before existing; and not only has he a different hindrance given, but he has to help him something whose counterpart no one else will ever possess.

Then it must follow that each one will reach success by a different road. But there are certain things which every one must attain, no matter how wide a chasm may separate his ideal good from that of another. And as the rarest treasures are ever guarded by one lock, and then another, and often others still, so is the road to success guarded from all of earth's sons who do not possess both interest in their work and perseverance to continue.

No person can rightly commence a work in which he feels no interest. And we could not desire him to continue in that which was not rightly commenced. Therefore interest is ever the first cause in arousing men to successful labor. None of the great reformations of the past that have uprooted evils standing since the foundation of the world, could have been achieved had they failed to awaken the interest of the people. In looking back upon the world's history, we find recorded the names of many measures, brought before its several nations, which we feel, had they been successful, would have been the means of arousing the people to a higher standard of worth. As we ask ourselves, "Why should this great and grand scheme meet with so ignominious a failure?" we can truly answer, because its coadjutors awakened no interest in the minds of others.

Would Columbus ever have succeeded in discovering the New World had he not felt that his scheme was among the grandest that ever entered man's mind? And could Europe's sovereigns with him have seen its greatness, he would not have waited long years for a fleet in which to cross the Atlantic. In whatever cause we may be laboring, those who work with the greatest interest, other things being equal, are the most successful.

But interest without perseverance will gain for us no victories. How many young people choose for their life-work that for which they have much talent! They work energetically and faithfully but for a short time, and then because success does not crown their first effort—because they meet what men must inevitably meet, obstacles—because the world will not give homage to those whose worth is untried, they commence some other work with as great interest as before, and with as little perseverance, and the results of the second are but the results of the first. Perseverance requires not only unceasing labor, but enduring patience. We must work expecting to wait, it may be years, for any degree of success. If the first effort be unsuccessful, how much greater is the need that we lay not down our vigilance, but give the undivided powers of our being to the second attempt. Even though some avenging god may seem to follow our footsteps, and endeavor to foil every plan, shall we give up? No! let us say we *will* conquer; and the greater the number of obstacles overcome, the prouder, the more glorious the victory.

Those who lack perseverance do not continue long in any one work; and constant change will cause the wealth or popularity which they seek, to seem ever but just a little beyond their reach. It will ever be beyond, never gained. But to what success may interest and perseverance lead us! Then realizing what strong weapons for good are interest and perseverance, let us remember that they are just as powerful instruments of evil, if used in the cause of wrong. Some successes are the worst failures that can be attained. Endeavor to reach the true success. And what is this if not the accomplishment of the greatest possible good? And in however humble a manner our neighbor may seek to improve the condition of the world, let us not despise his work, but look rather at the effects than the means.

Equine Sagacity.

A pleasant story has just come to us from the Cape of Good Hope. In Graaf-Reinet, in all the old Dutch towns in the colony, there is, in the centre of the place, a large market square, where the farmers, traders, and others, arriving with their produce at any hour of the day or night, may "out-span" the oxen or horses from their wagons, send the cattle out to the "commonage" to feed, while they bivouac at their wagons, as is the wont of African travelers to do, until the eight o'clock morning market auction. An old horse belonging to one of these parties had wandered about in search of grass and water—vainly, no doubt, for it was during the severe drought from which the country is but now recovering. Coming to the great bare market-place, and finding a knot of men talking there, he singled out one of them, and pulled him by the sleeve with his teeth. The man, thinking the horse might possibly bite, repulsed him, but as it was not very roughly done he returned to the charge, with the same reception; but he was a persevering animal, and practically demonstrated the axiom that "perseverance gains the day," for upon his taking the chosen sleeve for the third time between his teeth, the owner awoke to the idea that a deed of kindness might be required of him; so putting his hand upon the horse's neck, he said: "All right, old fellow; march on!" The horse at once led the way to a pump at the further side of the square. Some colored servants were lounging about the spot. One of them, at the bidding of the white man, filled a bucket with water; three times was the bucket replenished and emptied before the "great thirst" was assuaged, and then the grateful brute almost spoke his thanks to his white friend by rubbing his nose gently against his arm, after which he walked off with a great sigh of relief. A story somewhat analogous to the foregoing was told me by a friend, whose uncle, an old country squire in one of our western counties, had a favorite hunter in a loose box in the stable. One warm summer day he was "athirst," and could get no water. He tried to draw the groom's attention to the fact, but without success. The horse was not to be discouraged; he evidently gave the matter consideration. The thirst was pressing. All at once he remembered that he always had a certain halter put upon his head when led to the water. He knew where it hung. He managed to unhook it from its peg, and carried it to the groom, who at once, in great admiration of the knowledgeable brute, rewarded him in the manner he desired.

Curing a Toothache.

Millions upon millions of thanks are due the discoverer of this simple remedy for a distressing ailment, if it is only true. For thousands of years toothache has been in the world, ranking as the most decided affliction of mankind, and all this time alum and salt have been ready at hand, but with nobody possessed of the genius to apply them. But we know how it is done at last, and henceforth let toothache be banished from the world:

A gentleman says, after suffering excruciating pain from toothache, and having tried in vain to obtain relief, Betty told me a gentleman had been waiting some time in the parlor who said he would not detain me one minute. He came—a friend I had not seen for years. He sympathized with me, while I briefly told how sadly I was afflicted.

"My dear friend," exclaimed he, "I can cure you in ten minutes."

"How? how?" I asked; "do it in pity!"

"Instantly," said he. "Betty, have you any alum?"

"Yes."

"Bring it and some common salt."

They were produced; my friend pulverized them, mixed in equal quantities; then wet a small piece of cotton, causing the mixed powders to adhere, and placed it in my hollow tooth.

"There," said he, "if that does not cure you I will forfeit my head. You may tell this in Gath and publish it in Ashkalon; the remedy is infallible."

It was so. I experienced a sensation of coldness on applying it, which gradually subsided, and with it the torment of the toothache.

THE higher we rise the more isolated we become; and all elevations are cold.
DE BOUFFERS.

The Boy who Took a Boarder.

BY CHARLOTTE ADAMS.

Once upon a time, long before any of you children were born—about two hundred and fifty years ago, in fact—a little boy stood one morning, at the door of a palace in Florence, and looked about him.

Why he was standing there I do not know. Perhaps he was watching for the butcher or the milkman, for he was a kitchen-boy in the household of a rich and mighty cardinal. He was twelve years old, and his name was Thomas.

Suddenly he felt a tap on his shoulder, which made him turn around, and he said with great astonishment: "What! Is that you, Peter? What has brought you to Florence? and how are all the people in Cortona?"

"They're all well," answered Peter, who likewise was a boy of twelve. "But I've left them for good. I'm tired of taking care of sheep—stupid things! I want to be a painter. I've come to Florence to learn how. They say there's a school here where they teach people."

"But have you got any money?" asked Thomas.

"Not a penny."

"Then you can't be a painter. You had much better take service in the kitchen with me here in the palace. You will be sure of not starving to death, at least," said the sage Thomas.

"Do you get enough to eat?" asked the other boy reflectively.

"Plenty. More than enough."

"I don't want to take service, because I want to be a painter," said Peter. "But I'll tell you what we'll do. As you have more than you need to eat, you shall take me to board—on trust at first, and when I'm a grown up painter, I'll settle the bill."

"Agreed," said Thomas, after a moment's thought. "I can manage it. Come up stairs to the garret where I sleep, and I'll bring you some dinner by-and-by."

So the two boys went up to the little room among the chimney-pots where Thomas slept. It was very, very small, and all the furniture in it was an old straw bed and two wickered chairs. But the walls were beautifully whitewashed.

The food was good and plentiful, for when Thomas went down into the kitchen and foraged among the broken meats, he found the half of a fine mutton-pie, which the cook had carelessly thrown out. The cardinal's household was conducted upon very extravagant principles.

That did not trouble Peter, however, and he enjoyed the mutton-pie hugely, and told Thomas that he felt as if he could fly to the moon.

"So far, so good," said he; "but, Thomas, I can't be a painter without paper and pencils and brushes and colors. Haven't you any money?"

"No," said Thomas, despairingly, "and I don't know how to get any, for I shall receive no wages for three years."

"Then I can't be a painter, after all," said Peter, mournfully.

"I'll tell you what," suggested Thomas. "I'll get some charcoal down in the kitchen, and you can draw pictures on the wall."

So Peter set resolutely to work, and drew so many figures of men and women and birds and trees and beasts and flowers, that before long the walls were all covered with pictures.

At last, one happy day, Thomas came into possession of a small piece of silver money. Upon my word, I do not know where he got it. But he was much too honest a boy to take money that did not belong to him, and so, I presume, he derived it from the sale of his "perquisites."

You may be sure there was joy in the little boarding-house up among the chimney-pots, for now Peter could have pencils and paper and India-rubber, and a few other things that an artist needs. Then he changed his way of life a little. He went out early every morning and wandered about Florence, and drew everything he could find to draw, whether the pictures in the churches, or the fronts of the old palaces, or the statues in the public squares, or the outlines of the hills beyond the Arno, just as it happened. Then, when it

became too dark to work any longer, Peter would go home to his boarding-house, and find his dinner all nicely tucked away under the old straw bed where landlord Thomas had put it, not so much to hide it as to keep it warm.

Things went on in this way for about two years. None of the servants knew that Thomas kept a boarder, or if they did know it, they good-naturedly shut their eyes. The cook used to remark sometimes that Thomas ate a good deal for a lad of his size, and it was quite surprising he didn't grow more.

One day the cardinal took it into his head to alter and repair his palace. He went all over the house in company with an architect, and poked into places that he had never in all his life thought of before. At last he reached the garret, and, as luck would have it, stumbled right into Thomas' boarding-house.

"Why, how's this?" cried the great cardinal, vastly astonished at seeing the mean little room so beautifully decorated in charcoal. Have we an artist among us? Who occupies this room?"

"The kitchen-boy, Thomas, your Eminence."

"A kitchen-boy! But so great a genius must not be neglected. Call the kitchen-boy, Thomas."

Thomas came up in fear and trembling. He never had been in the mighty cardinal's presence before. He looked at the charcoal-drawings on the wall, then into the prelate's face, and his heart sank within him.

"Thomas, you are no longer a kitchen-boy," said the cardinal, kindly.

Poor Thomas thought he was dismissed from service—and then what would become of Peter?

"Don't send me away!" he cried, imploringly, falling on his knees. "I have nowhere to go, and Peter will starve—and he wants to be a painter so much."

"Who is Peter?" asked the cardinal.

"He is a boy from Cortona, who boards with me, and he drew those pictures on the wall, and he will die if he cannot be a painter."

"Where is he now?" demanded the cardinal.

"He is out, wandering about the streets to find something to draw. He goes out every day and comes back at night."

"When he returns to-night, Thomas, bring him to me," said the cardinal. "Such genius as that should not be allowed to live in a garret."

But, strange to say, that night Peter did not come back to his boarding-house. One week, two weeks went by, and still nothing was heard of him. At the end of that time, the cardinal caused a search for him to be instituted, and at last they found him in a convent. It seems he had fallen deeply in love with one of Raphael's pictures which was exhibited there. He had asked permission of the monks to copy it, and they, charmed with his youth and great talent, had readily consented, and had lodged and nourished him all the time.

Thanks to the interest the cardinal took in him, Peter was admitted to the best school for painting in Florence. As for Thomas, he was given a post near the cardinal's person, and had masters to instruct him in all the learning of the day.

Fifty years later, two old men lived together in one of the most beautiful houses in Florence. One of them was called Peter of Cortona, and people said of him, "he is the greatest painter of our time." The other was called Thomas, and all they said of him was, "Happy is the man who has him for a friend!"

And he was the boy who took a boarder.

The Tyrolese.

The Tyrolese paint the fronts of their house in fresco, mostly with subjects out of the lives of the saints, sometimes with passages out of Tyrolese history—battles and processions, and pomps and vanities of this world and the next—all set forth in rude, vigorous design, with a sort of reckless prodigality of coloring, as if red and yellow ochre cost nothing. A favorite decoration is that of a gigantic St. Florian emptying a bucket of water upon a diminutive house on fire, which reaches about up to his knee. No house they say can be burnt which bears this talisman. The Tyrolese are not alone in their regard of charms; almost every nation has its popular usages, based on vulgar credulity or superstitious reverence for relics or amulets.



JESSIE'S GRAVE.

BY J. R. E.

Oh, fair and fresh the fragile flower
That I so soon have lost;
The bud that bloomed in shine and shower,
And perished in the frost.

Sad memory muses whilst I stand
In this familiar place—
I miss the clasping of a hand,
The vision of a face.

My life had sunshine years ago—
But lost delight is vain;
The blossom dead beneath the snow
Shall one day bloom again.

Now in her early grave she lies,
In deep, unruined rest;
The eyelids drooping on her eyes,
The quiet in her breast.

"Charlotte Corday in Prison."

BY DELL.

This impressive picture is in the Corcoran Gallery of Art at Washington. It is the work of Charles N. Muller, an eminent French artist, known by his "Rolcall" of the victims of the guillotine during the first French Revolution. Charlotte Corday, descended from a noble family, though a republican, determined to rid the republic of the bloodthirsty Marat, who sent to the guillotine all opposed to him. She managed to get an audience with the monster, and as he was in the act of taking the names of some of her countrymen as fresh victims, she stabbed him to the heart. After a trial she was guillotined on the 17th of July, 1793, aged 25 years. She never repented the deed and displayed firmness and composure to the last.

The artist has depicted her in the garb of a rustic, with tri-color ribbons on her cap, resting languidly upon the rusty iron bars of her prison window. Her right arm is braced against the stone wall, the hand holding a pen, supporting the drooping head. The left hand clasps the iron bars—a touching contrast between its delicate, slender fingers and the rusty metal. The pose of the form shows weariness, as does also the noble pale face looking through the grating with a thrilling, earnest mournfulness. She appears as if, weary with writing, she had slowly sought the window for air untainted by prison walls. Her mouth shows unfaltering firmness, and her eyes show watchfulness and sadness, but not the sorrow of private grief. There is in them no sign of remorse, nor of regret, unless over the necessity of her

terrible act. Their whole expression speaks of a heart brooding over the fate of her country.

The picture is free from the tragic treatment the subject is too apt to receive from French artists. Its color throughout is grave and subdued. The clear, pale face, the plain gray garb, the stone wall and rusty bars, are all in solemn keeping. Even the rosy tints of the exquisitely tinted fingers harmonize with the prevailing gravity of color.

This noble picture is recently from the hand of the artist and has never before been publicly exhibited.

Washington, D. C., June, 1876.

English Landowners.

It is sometimes confidently asserted, both in this country and in England, that five hundred people own half the soil of Great Britain. The statement is entirely untrue. There is another statement, also quite popular, which appears to be more worthy of belief, because it is taken from official figures. The British census of 1861 gives 29,235 as the number of landed proprietors in the United Kingdom. The inference, if there were no more facts to be learned, would be irresistible, that less than 30,000 persons own the entire territory of the British Isle. But it was discovered by some one who took pains to investigate, that more than one-half of the persons set down as landowners were women. It was also discovered that thousands of persons who own land were set down as "private gentlemen," or as "farmers." The untrustworthiness of the figures was then absolutely proved, but they have, nevertheless, done duty in numerous speeches of land-reformers for ten years.

The Duke of Richmond, in a debate during the session lately closed in the House of Lords, exposed the extent to which the above statements were wide of the truth. According to the census, there were but 245 landed proprietors in Hertfordshire. As there are 391,141 acres of land in the country, this would leave an average of almost 1,600 acres to each owner. But the duke took pains to go through the rate-books, and found that the owners of land in Hertfordshire number 9,833, which is forty-four and one third acres of land to each owner, and an owner to every twenty-two persons of the population by the census of 1871. The same rate for England alone would make the number of proprietors almost a million. It is not, however, pretended that Hertfordshire is a fair test of the whole country. The Earl of Derby gave it as his opinion that the number of proprietors was in the neighborhood of 300,000.

The First Wine.

A Grecian legend is as follows: "When Bacchus was a boy he journeyed through Hellas to go to Naxia, and, as the way was very long, he grew tired, and sat down upon a stone to rest. As he sat there, with his eyes upon the ground, he saw a little plant spring up between his feet, and was so much pleased with it that he determined to take it with him and plant it in Naxia. He took it up and carried it away with him; but, as the sun was very hot, he feared it might wither before he reached his destination. He found a bird's skeleton, into which he thrust it, and went on. But in his hand the plant sprouted so fast that it started out of the bones above and below. This gave him fresh fear of its withering, and he cast about for a remedy. He found a lion's bone, which was thicker than the bird's skeleton, and he stuck the skeleton, with the plant into it, into the bone of the lion. Ere long, however, the plant grew out of the lion's bone likewise. Then he found the bone of an ass still larger than that of the lion. So he put the lion's, containing the bird's skeleton and the plant, into the ass's bone, and thus he made his way to Naxia. When about ready to set the plant he found the roots had entwined themselves around the bird's skeleton and the lion's bone and the ass's bone; and as he could not take it out without damaging the roots, he planted it as it was, and it came up speedily and bore, to his great joy, the most delicious grapes, from which he made the first wine, and gave it to men to drink. But behold a miracle! When men drank of it they first sang like birds; next, after drinking a little more, they became vigorous and gallant as lions; but when they drank more still, they began to behave like asses.

FUNGI.

Several years ago the press universally, gave an account (which some of our readers may have read), vouched for by well known physicians, of a boy lying sick at New Haven, Conn., with a diseased knee. He was a very great sufferer, and the best medical skill had afforded but little relief. Finally, a time arrived when a singular quiet and ease came to him, together with a strange unaccountable dread of having even his bed-clothes touched. There was great tenderness, but little

stem and leaves were white, the bud a delicate pink. The bud unfolded during the day into a blossom. Physicians came from far and near to see this curious freak of nature, and the plant was cut off and preserved by one of them. These are the main facts of the case. I write from memory, having read several accounts of the remarkable occurrence at the time. This seems almost incredible—but, that it really did occur is an undoubted fact, which does not seem so improbable when we consider that it was a fungus



TRUFFLE HUNTING.

pain. So elevating the clothes from the limb, his friends humored his whim, and let him alone to doze and dream. If they wanted to dress or examine it, he begged and pleaded with them not to. "Oh, don't!" he said—"only let me rest one day more!" This repugnance to an examination and repeated protest at the suggestion went on for nearly a week, when one day he said, "mother, now there is no one else here, you may see what is the matter." The clothes were thrown down and to the utter astonishment of both boy and mother, a plant grew from the sore knee. It had a stem with two leaves and a bud on it. The

growth and these growths are found everywhere in infinite variety.

Every object is more or less infested by this ubiquitous race; some spread themselves over our fruits; others attack our bread, cheese, pickles, or other manufactured articles of food. "When our beer becomes motherly," says Dr. Badham, "the mother of that mischief is a fungus," which also forms in vinegar; if pickles acquire a bad taste, if catsup turns ropy and putrefies, funguses have a finger in it all. Their reign stops not here—they even prey on each other. The close

cavities of nuts occasionally afford concealment to some species; others, like leeches, stick to the bulbs of plants, and suck them dry; some (the architect and shipbuilder's bane) pick timbers to pieces as men pick oakum. The *Oxygena equina* has a particular fancy for the hoofs of horses and the horns of cattle, sticking to these alone.

The belly of a tropical fly is liable in autumn to break out into vegetable tufts of fungous growth, and the caterpillar to carry about in his body a *clavaria* bigger than himself.

There is a curious Australian fungus, consisting of a sort of stem about an inch a half high, with a bunch of berry-like appearance at its summit. This takes its root in the head of a species of huge caterpillar, which, having burrowed in the earth preparatory to changing to the pupa state, becomes the prey of the fungus; and so firm is its hold, that when the latter is pulled from the ground the caterpillar on which it has fixed itself comes with it.

Almost every earthly thing is liable to be infested with some species or other of this tribe: the human teeth produce them, and the wounded flesh of living men. But we must forbear, for we might fill a large volume were we to attempt to describe all the strange and varied situations which fungi select for their own especial habitations and sustenance.

The chemical structure of fungi is said to be the most highly animalized, or, in other words, to partake more of the nature of animal composition than that of any other vegetable. Besides the intimations of this circumstance that are afforded by the smell of some of the species in decay, which partakes much of the character of that of putrid meat, and the strong meat-like flavor which some of them possess when cooked, we find the following fact stated—that, "like animals, they absorb a large quantity of oxygen, and disengage from their surface a large quantity of carbonic acid, but in lieu of it some give out hydrogen, and others azotic gas. They yield, moreover, to chemical analysis the several components of which animal structures are made up." They are considered to be highly nutritious, and are said to be easy of digestion.

In fact, the fungus tribe is an important and most remarkable division of the vegetable kingdom, similar in structure, and many of the species exquisite in form and coloring, whilst others are calculated to be extremely valuable articles of diet or medicine. The range of growth of the species of this remarkable kind of vegetation is as surprising as the variety in size, form and color which they exhibit. We wander in the dewy meadows in autumn, and we find the grass studded with mushrooms. Here and there we notice broad rings in the grass, and we know them to be the "fairy rings" which were in ancient times supposed to have been formed by the midnight gambols of fairies, when, with nimble feet, they tripped in mystic dance beneath the moonbeams; those whom Prospero thus adjures:

"In demi-puppets, that

By moonshine do the green sour ringlets make,
Whereof the ewe bites not; and you, whose pastime
Is to make midnight mushrooms."

These dark rings are known to be caused by the growth of fungi, which, it is supposed, spread outwards from the centre, every year of their growth, exhausting the soil of the circle which they have occupied, and throwing out fresh germs to one beyond, in which they grow the next year, and then again push beyond it, and occupy a wider range in each succeeding year.

As we pursue our rambles, and penetrate into the woods, we look above us and see huge fringes of fungus growth hanging out from the trunks of the trees, and on the decayed stumps around we perceive the most exquisitely tinted clothing of what, by the sea-side, we should conceive to be shell clustered in shelves one above the other, and all grouped in the most various and beautiful forms; we touch them and they are wood-like; we take a chisel and hammer, and such hard wood is it to chip them off, that we find it easier to take bark and all than to sever these parasites from the trunk on which they have fixed themselves.

These beautiful objects are all fungi. Some of them in form and penciling much resemble the

beautiful sea-weed (*padina pavonia*), but their painting is different, and consists of broad bands of black delicately shading into gray or lavender, and alternating into a soft orange color, the uppersurface being velvety, like the wing of a moth, and the lower part of a creamy white, full of minute pores, which give it much the appearance of coralline formation.

We have had clusters of them brought us from the woods, so beautiful as to induce us to group them as nearly as possible as they would appear in their native habits, and arrange them for a basket of flowers; and when set off by a massive bunch of roses or dahlias, this structure formed an object as beautiful as it was curious, and lasted for many months perfectly unchanged in form and color.

Besides these, and a thousand other varieties which infest trees, posts, etc., are a multitude of lovely little gems of all hues, which lie scattered about on the heath, or spring out of decayed leaves, bits of stick, wood, etc., all glittering in the moisture beneath the bright autumnal sunbeams, and looking like so many jewels. "What geometry shall ever define their ever-varying shapes? Who but a Venetian painter do justice to their colors?" says Dr. Badham. "As to shapes," he adds, "some are simple threads, like the *Byssus*, and never get beyond this; some shoot out into branches like sea-weed; some puff themselves out into puff-balls; some thrust their heads into mitres; these assume the shape of a cap, and those of a wine-funnel; some, like *Agaricus mammosus*, have a teat; others, like *Agaricus clypeolarius*, are umbonated at their centre; these are stilted upon a high leg, and those have not a leg to stand on; some are shell-shaped, and some hang upon their stalks like a lawyer's wig. Some assume the shape of a horse's hoof, others of a goat's beard; in the *Clathrus cancellatus* you look into the fungus through a thick trellis which surrounds it. One is formed like a nest, another like an ear." "One," says Dr. Badham, "is so like a tongue in shape and general appearance, that in the days of enchanted trees you would not have cut it off to pickle or to eat, on any account, lest the knight to whom it belonged should afterwards come to claim it of you."

The coal-mines of Dresden exhibit the interesting phenomenon of fungi which emit light like pale moonbeams; and Mr. Gardiner states, that "while in a Brazilian town he obtained a considerable quantity, and found that a few of them, in a dark room, were sufficient to read by."

Some of the facts supplied us by authors of the expansive growth of fungi are scarcely credible. One author speaks of his placing *phallus impudicus* within a glass vessel, and its expanding so rapidly as to shiver the glass to pieces with an explosive detonation as loud as that of a pistol. Carpenter gives an account of a paving stone, twenty-one inches square, and weighing eighty-five pounds, being raised an inch and a half from its foundation by a cluster of common toad-stools springing up under it. I recollect with what wonder I used as a child to stop on my way to school and look at these little growths, sprung up in a night, half expecting to see some of them occupied by a bevy of toads, and I recollect one day asking an uncle, "when the toads sat on the stools?" but was answered by a smile and "you must watch and see." I think children must be often puzzled by their sudden appearance in places they are familiar with. I fancy, were conversation possible, the following queries and replies might frequently take place:

Free 'tittle toad stools,
Don't you see?
Jes' as tunnin' as
We tan be,

What else dood for?
Lem' me see!
Fool boys, sometimes,
'Tween you an' me.

Where did we tum from?
We don't know.
Guess from the same place
Violets grow.

How old are we?
Don't know quite,
Reckon we came in
A shower, last night.

What are we dood for?
Jes' to keep
Rain from de mosses
When dey sleep.

Where are we goin' to?
O, my soul!
Wif all the flowers, in
A gate big hole.

Sir Joseph Banks makes a statement of a circumstance which occurred under his own roof, even more wonderful than any yet related. He states that a friend having sent him a cask of wine, which was too new and sweet for present use, it was locked up in a cellar to mature. At the end of three years, Sir Joseph, supposing that time had now done its work, proceeded to open the cellar and inspect its contents. Little did he think how time had been employed. The door refused to open, and he had it fairly cut away; but was no nearer effecting an entrance than before. The cellar was found to be literally filled with fungus growth, which had borne the casks aloft to the ceiling, where it stuck, upheld by fungi, the produce of the wine which had all leaked out and formed this monstrous growth.

The structure of the fungus tribe is most peculiar, and differs entirely from that of any other. Their whole substance may be considered as a mass of reproductive matter. The spores of fungi answer to the seeds in other plants; they consist of

round, oval, oblong, or occasionally other shaped bodies, so minute as in most cases not to be distinguishable by the naked eye, but displaying, when viewed by a microscope, various colors—pink, purple, yellow or white; they are sometimes naked, but more frequently closed up in little receptacles, those of regular form being called *thecae*, and those of irregular form *sporanges*. When ripe the spores are either ejected from these little cases with a jerk, caused by the bursting of an elastic ring, which encircles them, or else they return to the earth with the dissolving substance of the fungus in which they have existed.

The treasures of food which it has pleased God to provide for us in the fungus tribe are, by no means duly appreciated by the Americans. Throughout the continent of Europe, on the contrary, plants of this tribe are eagerly sought after by all classes, and form the chief, if not the sole diet of thousands, who would otherwise be but scantily provided with aliment. In Italy and Germany immense numbers of the various species of this tribe are sold in the markets, and produce an almost incredible amount of income. In Rome, so important are the fungi as an article of commerce, that there is a public officer appointed to test the species exposed for sale, and superintend this branch of the revenue; for in that market a tax is laid on all quantities of fungi presented for sale exceeding ten pounds in weight. "The returns of taxed mushrooms alone," says Dr. Badham, "during the last ten years, give a yearly average of between *sixty and eighty thousand pounds weight*." This calculation includes only the Roman market, and that every other market-place in the Italian states has its proportionate sale of this wide spreading branch of the vegetable product of the land.

Mushrooms exist under the most opposite conditions. Some appear on the surface of the earth, as the cultivated mushroom, the edible boletus, the morel, the puff-ball, etc. Girard says:

"The meadow mushroom is in kinde the best
It is ill trusting any of the rest."

Some grow upon the trunks of trees, upon branches, and upon leaves; others, as the truffle, are found buried in the earth at a considerable depth.

Very little is generally known about the mysterious article called the truffle, which belongs to the vegetable kingdom, but does not give the least sign of vegetation either in or out of the ground, and has so far, baffled all efforts made to cultivate it. It grows in the south of France, and also in Italy, Spain, England and Scotland. It is found under three species of trees only—the filbert, and the white and red oak (the last two in particular), and of late, the farmers and others of the county of Perigord, France, have found it profitable to sow the white and red acorn for the sole object of raising truffles. The young plants will procure truffles the fifth or sixth year, and often the crop of the tenth year is sufficient to remunerate the farmer for all the labor and interest invested. The finding of truffles would be due to mere luck or hard labor if it were not for the keen scent of the dogs and sows, which, in this strange hunt, are trained to seek this fungus. The English or Scotch truffle avails himself of the services of a dog and the French of swine. The dogs of Great Britain are of a peculiar breed, and trained from puppyhood to hunt the truffle out by the nose, and then to scratch it up with their long, sharp claws. They wear a muzzle to prevent their injuring the truffles, for although dogs do not eat them, they like to play with what they have worked so energetically to uncover, so the hunter must be ready to strike the dog on the nose the moment the truffle is in sight, or the dog will have it in his mouth. The dog finds them in shrubberies, plantations and woods, sometimes in banks and ditches, but always where trees abound, beneath them, or at a little distance from the stems, in rings of clusters of six or seven together round each tree. Though they are often found in September, the truffle understands so well their need of wet and damp that he will refuse to look for them in a dry season until a certain amount of rain has fallen.

Sometimes October passes without any worth gathering being discovered in their usual haunts.

A few days' rain, and then, in the very same places where the truffle had looked in vain, large clusters of the finest will have sprung up; so quickly is this strange fungus propagated under the soil in favorable situations and in damp weather.

They will increase from a quarter to half a pound in weight, and even in rainy seasons to as much as a pound, while they measure from about four to six inches round.

In dry, hot seasons they remain small, and are liable to rot and to be infested with insects. Resembling externally a rugged knot of an old oak or piece of decayed wood, and about the size of a walnut, they are found where the soil is black, loamy, and mixed with flint, or is composed of chalk and clay. Examine them minutely through the microscope, and you will find on opening one that the interior is grained with veins of various colors, and is of a firm, tough texture, white in color when young, and growing darker, until its ripeness is shown by becoming entirely black, and diffusing an agreeable odor resembling musk.

Besides this large truffle, there is another kind well known to the truffle, though ignored in scientific accounts. It is called in the truffle district the "red truffle," on account of its color, and is of the size of a sweet-pea, but though small, is equal in flavor to the larger kind, and in some places as common. A writer says:

"This extraordinary odor is so powerful and so peculiar, that no imposition can be practiced in providing this article of food. I can never forget, whilst living in a truffle district, the first time that three or four pounds were brought into the house. It was impossible to support their oppressive and pungent odor, which pervaded the whole house, and they had to be removed at once to a safe distance, till the cook, by either boiling or stewing them into sauce, prevented its recurrence. For, strange to say, it is the raw truffles that offend in this way, and then only when ripe and fit to eat; the young unripe ones are hardly perceptible by smell. This peculiar odor, imperceptible though it be to the human nose when growing beneath the soil, is yet scented out by the animals."

In France, the sows trained for hunting truffles, are fed entirely on acorns (never anything else), and during the season, once a day only—after the day's work is over. Rain in July or August is generally the precursor of a good crop. Truffles are found from six to ten inches below the surface. Those nearest are sometimes hurt by frost, though not often, in the mild climate of the south of France. Truffle hunting, in France, is a specialty, and the men, women and children devoted to it depend on the short season of forty or fifty days to earn enough to take care of themselves and their sows the rest of the year. The hunter cannot employ his time at anything else. He has all he can do to gather every day the necessary supply of acorns needed by his useful animal. Hunters generally start the day after Christmas. The whole outfit consists of the sow, fastened by the hind leg; one bag, containing bread and cheese for the man and acorns for the sow, another bag ready to receive the truffles, a blanket and a cane. The poor brute being led away seems delighted, well knowing it will be paid for every truffle that it finds. They are no sooner in the woods than the sow is let loose and begins to hunt, the man keeping close watch behind. The sow will go slowly over the ground and never root until it scents the precious vegetable. Upon sighting the article sought the animal will retire with a grunt from a rap on his snout from the hunter, for the hog is voraciously fond of this fungus. The man then picks up and bags the truffles, and gives the poor animal one or two acorns for its trouble. Man and sow stay out in the woods until driven away by a hard storm or by want of provisions, in which case they stop at the nearest farmhouse and deposit the result of their labor so far. Having rested and gathered the necessary acorns, they start again, and keep doing the same until the uber has disappeared from the ground in the same mysterious manner as it came. The preparation of the article is very simple. It is carefully washed and crushed. Some are peeled; others are left in their natural state. All are boiled just once, then put in tin cans, adding a wine glass of white wine to keep them moist. The cans, after being hermetically sealed, are submitted to a second boiling to insure preservation. Truffles are then ready to be shipped to any climate, and appear on the table of gourmands the world over.

When the vast number and universal dissemination of Fungales are taken into consideration, together with their diversity of form and size, it is not surprising that botanists have been much puzzled over them. Fries discovered no fewer than two thousand species within the compass of a square furlong in Sweden. Of the *Agaricus* alone, above a thousand species are described. In size they range from the minute moulds which are found to produce death in the silkworm and the common house-fly (which M. Deslongchamps found in the air-cells of the elder duck, while alive, and which Professor Owen found in the lungs of a flamingo), up to the great puff-ball, which attains the diameter of a foot in a single night.

An Accidental Discovery.

Many of the important discoveries of the world have been made by seeming accident, though nothing in the Providence of God can truly be called accidental.

Many years ago an Indian, in South America, was left by his companions to die of fever beside a flowing river. As the waters wound sluggishly by, he, ever and anon, stooped down and drank copious draughts from it. To the surprise of his companions he was restored to health, and again joined them to tell marvellous tales of the blessed river. The Jesuits were not slow to pronounce his cure a miracle, and an ever-ready story of some heavenly visitant who had placed a spell on the stream, was rehearsed again and again in the credulous ears of the poor natives. The sick from all around flocked to the holy waters, and multitudes were cured. But by-and-by it became known that the virtue came from natural causes. The bark of a tree which floated abundantly in the stream had imparted its medicinal properties, and when the many came it was at length exhausted. But the tree grew all about in the forests, and Peruvian bark soon became an article of commerce, and was carried to Rome as early as 1643. It was not until 1737 that the tree became known to naturalists.

I fancy many a poor child who has been forced to take his daily dose of quinine or cinchona, wish heartily the old Jesuits had never made the discovery.

The Window Lights.

We can never tell when or where an influence may go out from our lives that will prove a blessing to others, giving them strength and cheering in times of their deepest sadness.

A lady, whose home was nearly opposite a hospital, went over one day with some little comforts for some of its inmates. While sitting in a front room, which overlooked her own dwelling, conversing with real sympathy with a patient, she learned what a comfort the light of her cheerful sitting-room had often been to these solitary sufferers—how the bright family group had cheered them like a beautiful picture—how they had loved to watch it, and how sorry they felt when the blinds were closed, shutting it all out and leaving only the blank darkness. It is needless to say that the blinds of this kind woman's sitting-room was left open after that until the lights were out in the opposite house, and the pleasing view did good like a medicine to those who loved to watch it. It was a small charity, but a blessed one, that benefitted both the giver and receiver.

Two young ladies, who had been reduced to extreme poverty by the misconduct of their father, toiled early and late at the business of dressmaking in their effort to make headway against their misfortunes. In their humble room, unknown and unnoticed, they seemed as little likely as any one in the world to exert an inspiring influence upon others. Yet the light in their lowly window was noticed by a young physician as he was returning late at night, and he remembered having often seen it before. Though almost in the depths of despair himself, he could not help inquiring who were the late watchers. When he learned their history it nerved him with a new ambition and resolution. If they could show such spirit, surely he, with a man's strength and opportunities, should not give way to despondency. So with new courage he set forth to battle with life and won a splendid victory. He never forgot that light in the window and the lesson it taught him.

Every Christian should be "as a city set on a hill." An influence should go forth from our every day life that shall elevate and cheer all about us. We should let our light shine. By so doing we may do good to others in most unexpected times and ways. The "light in the window" of our daily lives may be the means of winning many to the mansions of eternal light, and though we never knew them on earth, we shall, doubtless, know them in heaven.

Pay as You Go.

Gen Sherman has a remarkable faculty for saying sensible things. His advice to the young men of the O'Fallon Polytechnic School a short time since, was by no means below his usual standard. He remarked:

"One half of the evils that beset the path of young men starting in life come from the neglect of their parents to educate them in the use of money. Not that all parents, or even most of them, are extravagant with their sons' allowance, or that they do not give them a great deal of advice on the subject of economy. But they do not, in the strict sense of the word make the proper use of money a part of their education. They restrain, but they do not guide. As boys' needs and desires increase, they are too apt to be met with only increasing difficulty in getting money, interposed often in such a form as to stimulate rather than regulate their appetite for spending. It is hard for parents to realize that sooner or later their sons must have the control of more or less money to use or waste, to save or invest, according to their own judgment, and that mere restriction in the allowance of money does not fit them for the temptations, difficulties, and perplexities of this important part of the business of life. Nor should it be forgotten that a great proportion of the dishonesty which is so common in our modern communities flows from the want of proper training of young men in the employment of money. Its source, like that of a good deal of other crime and sin, is in ignorance and weakness rather than in deep-seated viciousness.

"The old Roman rule, that the debtor was to be regarded always as the possible slave of the creditor, is not now a basis of legal action, and American law no longer allows imprisonment for innocent debt. But neither the Roman rule nor our own former practice was without its basis of reason and equity. It is common to speak of the oppressed debtor, but in most cases debt is a voluntary thing. Few men incur it

from necessity. In the great majority of cases, men who cannot pay their debts, especially young men, might have been able to do so if they had not wasted their means. A very small percentage of debtors habitually cut down their expenditures to the lowest possible point. Indeed, they would generally be considered 'mean' if they did so. The economies necessary for a man of small means to keep out of debt are very petty in amount and in character. They are inevitably annoying and irksome, and the strain on the will is constant. It is quite easy to regard them as contemptible. But they are in reality the reverse of that. They are essentially noble, and they add to, instead of detracting from, the dignity of the man who is capable of them. The old law was based on this fact, and punished and degraded the man who would not deny himself to pay his debts.

"Borrowed money, where the debtor does not know how he is to pay, and has no clear resources to depend on, is not the money of the borrower, but of the lender. And where the motive of the lender is not one of friendship, and the credit is given as a matter of business, no man has any right to borrow without knowing that he can pay, any more than he has the right to swindle. The promise of payment in such case is essentially a false pretense, and as unjustifiable as any other form of deception." These are principles which to young men cannot too frequently be commended, and it will be well if any of Gen. Sherman's hearers should conceive for his teaching a respect proportioned to the admiration felt by every one for their distinguished author.

Greatness and Goodness.

Take goodness, with the average intellectual power, and compare it with mere greatness of intellect and social standing, and it is far the nobler quality; and if God should offer me one of them, I would not hesitate which to choose. No, the greatest intellect which God ever bestowed I would not touch if I were bid to choose between that and the goodness of an average woman; I would scorn it and say, "Give it to Lucifer; give me the better gift." When I say goodness is greater than greatness, I mean to say, it gives a deeper and serenely joy in the private heart, joins men more tenderly to one another, and more earnestly to God. I honor intellect, reason and understanding. I wish we took ten times more pains to cultivate them than we do. I honor greatness of mind—great reason, which intuitively sees truth, great laws, and the like; great understanding, which learns special laws and works in detail; the understanding that masters things for use and beauty; that can marshal millions of men into an organization that shall last for centuries. I once coveted such power, and am not wholly free from the madness of it yet. I see its use. I hope I am not ignorant of the joys of science and letters; I am not of the pursuit of these. I bow reverently before the men of genius, and sit gladly at their feet. But the man who sees justice and does it, who knows love and lives it, who has a great faith and trusts in God—let him have a mind quite inferior, and culture quite a little, I must yet honor and reverence that man far more than he who has the greatest power of intellect. I know that knowledge is power, and reverence it; but justice is a higher power, and love is a manlier power, and religion is a diviner power, each greater than the mightiest mind.

THEODORE PARKER.

Good Advice.

I am always sorry for a man who knows how to do but one thing, I have seen many such men. I gave ten dollars to one who could speak and write five or six languages and translate beautifully; but in the middle of a hard Winter he could not get a living. I knew another man who had preached twenty-five years, till his throat failed him, and he used to go around looking very blue and sad, until people pitied him and got up donation parties for him, because he was good for nothing except to preach. I knew a lady who had taught school for twenty years, till she was a poor, nervous, broken-down woman, and didn't know how to make a dress for herself. Now, boys and girls, every real man should know how to do one thing right well. Every wise farmer has a principal crop; but he has always a little something else to live on. Don't carry all your eggs in one basket. Don't put all your money in one pocket. If you want to get along right well, learn one sort of work to get along by, and all sorts of work to get a living with when your one sort gives out.

"Fixed Vegetable Oils."

BY JAS. P. DUFFY.

Fixed Vegetable Oils are certain kinds of oils which generally consist of two different principles, one of which, *olein*, is a fluid; the other part, where the oil is obtained from mineral substances is called *stearine*, but is also known as margarine. When the oil is produced from vegetable substances, such as the cocoanut or palm, the second principle is called *cocine*, or palmitin. The latter principle is a solid matter, the quantity varying with the different oils.

The chemical elements of these oils, generally speaking, are nearly the same, that is, they usually contain nearly equal proportions of hydrogen and carbon, a small quantity of water, and about the same amount of oxygen. A few, such as palm-oil, at ordinary temperatures, are nearly solid; but they all, without exception, become half solid on being exposed to a temperature of less than 32 deg. A familiar illustration of this fact can be seen in the case of salad oil, which, as is well known, freezes in Winter.

As every variety (and there are very many of them) of fixed oil is insoluble in water, if it be mixed therewith, it will speedily rise to the top of the same, thus showing it to be lighter than the water, since it floats thereon.

In most cases of exposure of fixed oils to the atmosphere they will absorb oxygen and become thick, except the oil is in a thin layer, in which case it dries. Other oils become rancid on exposure. These different properties constitute an important affair in their ordinary usage. The former class are known as *drying oils*, and when boiled with litharge are used by house-painters to a great extent. The principal of these are linseed, hempseed, nut, poppy and walnut. The other class is called fat or unctuous oils, and to them many fires originating from spontaneous combustion may be ascribed. The latter is caused by rags which have been smeared or used in wiping such oils, being thrown in a heap in a corner. There they are often allowed to remain for some time, when the carbon in the oil undergoes oxidation thus evolving carbonic acid. The production of the latter is accompanied with an elevation of temperature, and the consequences but too often are that the rags take fire with serious results.

Among the oils which produce this effect, the most prominent are rape, colza, cameline, sun-flower, cotton, cocoanut and sessama. They only dry after very long exposure to the air. Although fixed oils cannot be dissolved in water, yet they are soluble in fluids containing either soda or potash. Hence it follows that the latter may be used for cleaning oil lamps, and removing grease from clothes.

The extraction and purification of fixed vegetable oils will be described in another article.

Products of Coal.—"Marsh Gas."

BY JAS. P. DUFFY.

Prominent in the series of the products of coal are two gases known as marsh gas (light carburetted hydrogen), and olefiant gas.

The first of these, marsh gas, is the subject of this article. It is so named from its frequent occurrence in places containing stagnant pools of water. This may be proved or illustrated by proceeding in the following manner:

Thrust a long pole into one of the above-mentioned pools, and stir the water; immediately the air will become offensive on account of the gas liberated. Now invert an empty wide-mouthed glass jar over the pond, near the bubbles of water. It will soon be filled with the gas which may be kept for use.

The origin of the gas in this case is owing to the putrefaction of vegetable substances, in a place where insufficient oxygen to oxidize these same substances into carbon, is found. In this, the water, by covering the vegetable substances, is the cause of the insufficient supply of oxygen.

Ordinarily, marsh gas is colorless, and possesses about one-half the weight of air, it ranking as the second lightest substance known. It forms a considerable portion, and is partly the cause of the illuminating power of coal-gas already described. Its greatest natural source is the coal mine, where it sometimes occasions disastrous accidents. At ordinary temperatures it some-

times escapes from the masses of coal, and coming in contact with air, forms "fire-damp." The explosion of this mixture in mines, which are deficient in ventilation, often occasions loss of life.

It may be prepared, artificially, in the following manner:

Place on an iron plate a mixture of one hundred and twenty-four grains slaked lime, thirty-one of sodium acetate (crystallized), and sixty-two of sodium hydrate. Heat the whole gently until it has become dry and friable. Now procure a glass tube, seven or eight inches long, an inch wide, and closed at one end. Fill it with the dry mixture, and attach caout-chouc piping to it in order to carry off the gas to be formed. The latter must be arranged to dip in a vessel of water containing a bent tube connected with a gas jar. The tube containing the mixture is now to be arranged so that it can be heated by a spirit lamp. Marsh gas will soon be evolved from the tube containing the chemicals, and will pass through the piping to the vessel of water, and thence through the bent tube to the gas jar ready for use.

The principal purpose for which this gas is used, is in making chloroform. This is effected by allowing chlorine to act slowly on it, by this means, what is called three atoms of hydrogen, being taken away and replaced by the same quantity of chlorine. The result is a volatile, colorless liquid, the inhalation of the vapors of which causes temporary insensibility to pain.

Practical Jokes.

In later days, fortunately for the nerves of the majority of people, practical jokes are considered in very bad taste, and discouraged by society; but in the last century they flourished like weeds. Perhaps our readers are already familiar with the exploit of the famous Turpin, who entering a tavern-yard on one occasion, slipped the harness off an ass, and sending the animal away in the care of a confederate, crept into the harness himself, and with unblushing effrontery awaited the arrival of the owner, who was naturally astonished to find his beast gone, and a man standing harnessed in its gear. Still more was he amazed when he heard Turpin devoutly thanking God for the recovery of his human shape. "At length," exclaimed he, "my sins are forgiven me, and the time of my penance is expired. I sinned and was changed to an ass, but heaven is merciful, and its anger does not endure forever." Saying which Turpin threw down his harness and walked off. However, not very long after, the ass was sent to be sold, and who should come into the market but its former proprietor. After staring at the animal, he called out, "What! has the wretch sinned again! and has he again been turned into an ass? For the love of God, friends, have nothing to say to that animal! He has deceived me once, but I am not to be caught again; for, look you, whoever buys him will find him some day or other as I did, turned into a man." The joke, in this case, was good, but its originator profited by it, cleverly combining wit with profit.

A practical joke of a different character was once played on a well-known author by his patron, the Duke of Norfolk. The impecunious writer was surprised in his garden, and surrounded by a number of distinguished visitors, headed by the duke who said, "We are come to dine with you, old bard." "Your royal highness has taken us by surprise," said the writer, "but we will send off for some provisions to Dorking; it is only three miles off." A messenger was despatched, but conformably to previous instructions, intercepted, and a walk in the garden being proposed, the captain was detained in conversation whilst the servants were setting out the table and arranging the banquet. All this time the author was suffering the agonies of a host who, though on hospitality intent, was conscious of the emptiness of his larder, and on the anxious lookout for the arrival of the basket lading with supplies from Dorking. Presently the dinner was announced. Morris entered the dining-room, profusely apologizing as he went. To his great surprise, the table was spread bountifully with fish, hams, fowl, venison and pastry, terminating in a sublime round of boiled beef. "A most ingenious and well executed device," said the relieved author, who was something of a gourmand. "The joke, however, is not at my expense;" and he sat down and heartily enjoyed himself.



WHAT MIGHT BE.

BY SARAH DOUDNEY.

If I were bound to you, she said,
Ove so passing well
That I could leave my purple dales
and bright with bud and bell,
Nor weary for the fruitful vales
Wherein my people dwell.

If I could be with you, she said,
Deep in your city's heart,
In all your dark and toilsome days,
I too would do my part;
Made strong to tread the woeful ways,
As stainless Britomart.

If I were one with you, she said,
Our blended lives might flow
Like some full river's tide to bless
The homes of high and low,
Till God's sweet plant of righteousness
Should greatly thrive and grow.

But as that may not be, she said
(He knoweth what is best),
I do my work apart, and pray,
"O, Father, make him blest!
And hasten thine eternal day,
When love shall find its rest."

Oral Instruction.

Literally taken, oral instruction is any instruction conveyed by word of mouth; that is, any information or statement made by the lips to the ear, in distinction from the same addressed to the eye by means of the written or printed page. Hence, many regard all verbal communication to the pupil, whether it embodies explanation of something done or statement of something in extension of what a book says, or whether it is a formal lecture, as oral instruction in the sense which educators attach to the words. A conversation with a class, or a reading from a book, or an illustration thrown in, or even a story told, are in this view the varieties of oral instruction. In like manner a page repeated from memory, be it history or grammar or intellectual arithmetic, is an oral lesson on the part of the pupil. The essence of it consists simply in *spoken* words rather than in *printed* words; in the form of address, or in the sense addressed, rather than in any skillful approach to the intellect by the avenue of readiest access. It is not this which may be claimed to be a "method" by itself, for this is an accompaniment and auxiliary of all methods. Oral instruction is not simply *talking* to, or with a class.

Nor, again, is it simply giving the lessons of a text-book without the book. If teacher and pupil should both be able to dispense with all books in the class and to go through with the lesson as it is given them, it might not vary at all from the lesson of the book, and the only distinguishing feature of it would be the greater exercise of memory. This would be on the part of both a lesson remembered, for which the text-book would still furnish both the guide and the substance. This lesson would have an apparent advantage over one heard directly from the text-book; but, except so far as independence of the book at the time of recitation goes, only an apparent advantage. Oral instruction differs from other instruction in that it makes its own text-book—that is, its definition, its statements of principles, its rules, all that would be put into a book; and in that it does this, not by giving them ready-made, but by leading to them by regular steps. It aims to persuade the pupil to use his own power by a skillful presentation of points adapted to awaken his curiosity. It assumes that the pupil may, within his range, investigate and discover truth and learn to make the formulas by which it is expressed, and that this is better than to give him formulas of any sort and tell him to use them for solving problems or for doing any part of his work. It is a process of unfolding, of development, rather than of furnishing the results of previous investigation made by others. It is original inquiry under guidance; inquiry at first hand, rather than reception of truth at second hand; it is a path of discovery, rather than a subsequent account of what has been discovered. It is leading the child to do what all who make books ought to do, instead of telling him outright the results which others have already reached. It is a methodical presentation of truth, not ordered on the surface, but near enough to stimulate search, without requiring too severe toil or too deep delving. Step by step truth is unfolded, not communicated. Ray by ray light is let in that each point may be seen by itself, and that the whole may at length stand revealed, and that each part by the process of discovery may be the learner's. In the nature of the case instruction which has this end as its leading idea must be *oral*; it must be for each learner a bringing out of his powers; it must be a direct personal contact of his own mind with the mind of the teacher, and through the medium of the subject which is under investigation.

The Streets of London.

BY CAPTAIN CARNES.

It is immaterial what you throw into the streets of London, it is always picked up in a short time. Those whose avocations call them upon the streets at an early hour see an altogether different race of men from those met during the day. In such streets as are still paved, men may be seen peering earnestly on the ground, and armed with a short stick having a metal hook on the end. This stick is thrust into and drawn along the crevices between the paving stones. Does it give out a metallic sound? In an instant the man has picked up something and placed it in the wallet hanging over his shoulder. He takes no notice of any one, he keeps on walking; and although a casual observer may discover nothing, yet the professional's hand is constantly swinging up to deposit something in his pack. It is said that the findings of this class are mostly nails fallen out of horseshoes. And all under the streets, where we are carelessly walking, the sewers are peopled with patient, persistent workers, hunting in the dark and slime for plate or jewels that luckless thieves may have thrust down there in the night when closely pursued by outraged law officials. And lusty rats plunge and hustle away into side aisles of this net-work of water streets underground. The ragpickers are astray at an early hour, so are the bone and garbage pickers, only intent upon prolonging an existence which seems to us, more favored ones, as only a long life-struggle with starvation and death. Looking at the suffering, the ignorance, the criminality found in the great cities of the world, and then glancing at the many discontented, fretful, unhappy natures that do not and will not esteem the great privileges which God has given them to improve their own condition and that of the poor around them, we can but send up the mental prayer:

"Open our blind eyes and soften our hearts, that we may be thy faithful stewards."

A Sailor's Story

Four years ago (writes an American sailor) I left the port of Boston, the master of a fine ship, bound for China. I was worth ten thousand dollars, and was the husband of a young and handsome wife, whom I had married but six months. When I left her, I promised to return in less than a twelvemonth. I took all my money with me save enough to support my wife in my absence, for the purpose of trading when in China, on my own account. For a long time we were favored with prosperous winds; but when in the China seas a terrible storm came upon us, so that in a short time I saw the vessel must be lost, for we were drifting on the rocks of an unknown shore. I ordered the men to provide each for himself in the best possible manner, and forget the ship, as it was an impossibility to save her. We struck—a sea threw me upon the rocks senseless, and the next would have carried me back into a watery grave, had not one of the sailors dragged me further up the rocks. There were only four of us alive, and, when morning came, we found that we were on a small uninhabited island, with nothing to eat but the wild fruit common to that portion of the earth.

I will not distress you by an account of our sufferings there; suffice it to say that we remained sixty day before we could make ourselves known to any ship. We were taken into Canton, and there I had to beg; for my money was at the bottom of the sea, and I had not taken the precaution to have it insured. It was nearly a year before I found a chance to come home, and then I, a captain, was obliged to ship as a common sailor. It was two years from the time I left America that I landed in Boston. I was walking in a hurried manner up one of its streets, when I met my brother-in-law. He could not speak nor move, but he grasped my hand, and the tears gushed from his eyes.

"Is my wife alive?" I asked. He said nothing. Then I wished that I had perished with my ship, for I thought my wife was dead, but he very soon said: "*She is alive.*" Then it was my turn to cry for joy. He clung to me and said: "Your funeral sermon has been preached, for we have thought you dead for a long time." He said that my wife was living in our little cottage in the interior of the State. It was then three o'clock in the afternoon, and I took a train that would carry me within twenty-five miles of my wife. Upon leaving the cars I hired a boy, though it was night, to drive me home.

It was about five o'clock in the morning when that sweet little cottage of mine appeared in sight. It was a warm, moonlight night, and I remember how like heaven it looked to me. I got out of the carriage and went to the window of the room where the servant girl slept and gently knocked. She opened the window, and asked "Who was there?" "Sarah, do you not know me?" said I. She screamed with fright, for she thought me a ghost, but I told her to unfasten the door and let me in, for I wished to see my wife. She let me in and gave me a light, and I went up stairs to my wife's room. She lay sleeping quietly. Upon her bosom lay our child, whom I had never seen. She was as beautiful as when I left her, but I could see a mournful expression upon her face. Perhaps she was dreaming of me. I gazed for a long time I did not make any noise, for I dare not wake her. At length I imprinted a soft kiss upon the cheek of my little child. While doing it, a tear dropped from my eye and fell upon her cheek. Her eyes opened as clearly as though she had not been sleeping. I saw that she began to be frightened, and I said, "Mary, it is your husband!" and she clasped me about my neck and fainted. But I cannot describe to you that scene. She is now the happy wife of a poor man. I am endeavoring to accumulate a little property, and then I will leave the sea forever.

The Panier.

The panier flourished in the time of Louis XV., and consisted of a petticoat made of basket-work. They were even made of wood with bars of iron, and were originally introduced from Spain by Anne, of Austria, mother of Louis XV., and were the fashion for about twenty years during the reign of Louis XIII. For nearly a century they disappeared, and it was not until the time of Louis XV. that they once more became the mode. Barbier, in his interesting diary, published more than a century ago in Paris, tells us that "The Cardinal of Fleury had his legs much cut by the paniers of a

certain lady with whom he was recently returning from a religious service. You know these paniers are so monstrous that two persons cannot well occupy the same sedan chair on account of their size. His eminence insisted upon returning home in the chair of Madam —; and, as he is a stout man, he somehow or other broke her panier, and the wooden bars wounded his legs so that he had to be carried out of the chair, with the blood trickling down his calves. As to the lady, she laughed fit to kill herself at this spectacle, which has made all Paris roar." Further on he tells us: "These paniers are so big, that when the Queen is seated in her reception-room with mesdames the sisters of the King on either side of her, their petticoats hide her Majesty so completely, that the King has issued an order to the effect that there shall always be two vacant chairs on either side of her Majesty."

A Royal Joke

One does not think of Frederick the Great primarily as a joker. His life was anything but humorous, and was the cause of more tears than smiles. But Frederick loved a joke, especially if there was a spice of maliciousness in it. His whole intercourse with Voltaire was a great comedy—a burlesque of friendship and literary patronage. On one occasion Voltaire requested the privilege of reading a new poem to him. Frederick was delighted, and named an hour when he would graciously listen to the latest production of the great French genius. At the appointed time Voltaire appeared, manuscript in hand, and read the poem. The king had meantime secreted behind a screen in the same room a man of wonderful memory, who had the gift of repeating any composition, however lengthy, to which he had once listened. When Voltaire had concluded his recital, Frederick expressed great admiration, but declared he had heard the poem before. The poet was indignant, repelling the charge of plagiarism with great warmth. The king, however, insisted that the poem was by no means of recent origin, and said there was a man in his court who could repeat it from beginning to end. He sent for the man who had been concealed behind the screen and who had listened to the reading, and requested him to repeat a certain poem, quoting the first lines. The man instantly, and to the great astonishment of Voltaire, repeated the poem word for word. The indignation of the poet, when he discovered the trick, may be more easily imagined than described.

EVERY human soul has a germ of some flowers within, and they would open if they could only find sunshine and free air to expand in. I always told you that not having enough of sunshine was what ailed the world. Make people happy and there will not be half the quarrelling or a tenth part of the wickedness there is.

A Useful Drug.

Ammonia, or as it is generally called, spirits of hartshorn, is a powerful alkali, and dissolves grease and dirt with great ease. It has been recommended very highly for domestic purposes. For washing paint, put a teaspoonful in a quart of moderately hot water; dip in a flannel cloth and then wipe off the woodwork; no scrubbing will be necessary. For taking grease spots from any fabric use the ammonia nearly pure, then lay white blotting-paper over the spot, then iron it lightly. In washing lace, put about twelve drops in a pint of warm suds. Put in your silverware and wash, using an old nail-brush or tooth-brush for the purpose. For cleaning hair-brushes, etc., simply shake the brushes up and down in a mixture of a tablespoonful of ammonia to one pint of hot water; when they are cleaned rinse them in cold water, and stand them in the wind or in a hot place to dry. For washing finger marks from looking glasses or windows, put a few drops of ammonia on a moist rag and make quick work of it. If you wish your house plants to flourish put a few drops of the spirits in every pint of water used in watering. A teaspoonful will add much to the refreshing effects of the bath. Nothing is better than ammonia water for cleaning the hair. In every case rinse off the ammonia with clear water. To which we would only add, that, for removing grease spots, a mixture of ammonia and alcohol is better than alcohol alone; and for taking out the red stains produced by the strong acids in blue and black cloths, there is nothing better than ammonia.

Wonderful Kindness of a Dog.

Lately, says a Cleveland paper; we chronicled the fact that a little boy, seven years old, who had wandered away from his home on Chatham street, West Side, and become lost, was found by a policeman crouched in the corner of a yard asleep and half frozen, for the weather was quite cold. To this should now be added the fact that the boy, finding himself unable to make his way home, began to cry, and while thus engaged, a large dog, apparently a cross between the hound and shepherd breeds, which the boy had never seen before, came along, and, appreciating the boy's distress, took up a position close to the boy, and remained on guard before him, lending the warmth of his shaggy covering to keep comfortable the feet and limbs of his human ward. He was in downright earnest in his self-imposed guardianship, for when the officer attempted to arouse the little sleeper and take him to the station for better security, the dog manifested a disposition to resist any interference with his charge, and it required considerable coaxing on the part of the patrolman to induce compliance on the part of the canine constable. He finally conceded the point, however, and suffered the little wanderer to be led to the Central station, where he was given a chance to get a good nap on a lounge in a warm room. But the dog did not desert him even here, seeming to think the boy might require further attention, and he followed on to the station, stole quietly into the room where he was taken, stretched himself on the floor beside the couch of his little companion, and when the sergeant went thither at seven o'clock in the morning to look after the little fellow, the dog manifested no little anger at the intrusion, and stuck by the boy with a fidelity as devoted as it was wonderful. The little fellow was then taken to the West Side station on Detroit street, the dog still attending him, and taking up a position at his feet as soon as they reached there, and viewing all comers with the eye of jealous and determined guardianship. What became of the two after this, beyond the fact that the boy was restored to his home, we know not; but the peculiar and wonderful conduct of the dog certainly deserves the mention and commendation we here make of it.

THE WYOMING MASSACRE.

A LEAF FROM SAVAGE HISTORY.

BY JASPER T. JENNINGS.

WYOMING. It is the name of one of the most beautiful valleys in the world. Poets have sang of its scenery, travelers and historians have dwelt on its natural splendor, and painters have lingered to paint the glories of its autumnal sunset. It was long claimed by the Indians of the Six Nations, but the Delaware, Shawnee, and Nanticokes, and some other tribes, occasionally obtained possession. In 1742, Count Zinzendorf, the great apostle of the Moravians or "United Brethren," came to America, and the following year he plunged into the wilderness to preach their doctrine to the red men of the forest. It was while engaged in the work of their missionary enterprise that they penetrated to the wild though beautiful vale of Wyoming.

Hardy pioneers soon followed, and an active and industrious settlement was commenced. Flowers grew in profusion all over the forest, and luxuriant wild grape vines trailed among the branches of the trees, often covering the glens at the foot of the surrounding mountains and the coves along the placid Susquehanna, with an arching canopy of dark green leaves, intermingled in the autumn with rich purple clusters of fruit, ever a source of delight to the lover of the forest and backwoods.

A feeling of friendship and brotherly love is always a peculiar trait of early frontier life. At the commencement, it existed in Wyoming; and from morning till night the rustic songs of the merry woodmen, intermingled with the echoes of their axes, as they felled the tall trees of the grand old forest, rolled the logs and split rails to build fences where the ripening grain waved over the fields dotted with charred stumps, and wreaths of thin blue smoke rose in lazy spiral curls from burning log-heaps, and from the rude old fashioned stone chimneys of their log cabins, where the happy housewives plied their daily toil while their merry children chatted and built play-houses in the door-yard. No one thought it low or unbecoming to labor, but all toiled alike, each in his or her respective sphere, and not because they were obliged to, but because it was their duty, and their love and pride revolted at the thought of idleness.

Such scenes, perfectly free from the tyranny of modern fashion and the turmoils of avaricious greed and strife, where true health, peace, and happiness prevail, must be sought for in the little colonies; where men and women of sturdy mould and

ambitious mind are not afraid to labor, even under difficulties and hardships, wielding the axe and plow, the loom and churn, and turning an honest penny; plodding onward and upward along life's road together, in friendly neighborhoods among the hills and backwoods where the bounteous hand of Nature clothes the ground in all the beauties of terrestrial glory—where man is equal with his brother man, and love prevails—and where society is courted and cultivated for the good there is in it, and not for the shams of an outward show.

One would imagine as he passes along the level fields of the Wyoming valley of to-day, noting the abundant productions, the neat gardens and villas surrounded with ripe fruits and flowers, filling the balmy atmosphere with sweet perfume, and combining to produce upon the outward senses, sensations of all the delights of harmonious Nature, could have no dark story to tell. And yet Wyoming with all its natural beauty has had its page of dark and cruel history.

In 1762, about two hundred persons arrived from Connecticut and settled just above where Wilkesbarre now stands. At first they lived friendly with their red neighbors, but ere long their wily foes thinking themselves offended, made a sudden attack and massacred about twenty persons. The rest fled in dismay over the mountains and through the forest to the settlements at Easton. The settlers were men of daring, however, and their first disaster did not overthrow their courage. They had suffered heavily, but like iron passing through the fire, it had tempered and strengthened their minds, and the enterprise they had commenced could not be given up.

The valley was again repopulated, but a new foe, formidable in its character, arose to menace their happiness and undermine the foundations of their society. The Connecticut settlers claimed the territory under their charter from England. The Pennsylvania settlers opposed them. For a time fierce disputes raged, and insurrection and civil strife were threatened; but ere the trouble was settled, the flames of the Revolution between England and America burst forth, and they were obliged to reunite and join hands in the protection of their common country.

The entire white population of the valley at this time was probably some 2,500 souls. The news of Lexington and Bunker Hill fired their souls with the mighty pulsations of liberty and patriotism, that like an electric impulse, was arousing the people from Massachusetts to the Carolinas. With their accustomed activity and vigor they raised several companies, which marched away to Washington, and to participate in the battles of Brandywine and Germantown.

The war for Independence had continued three years, and its effects began to be sadly felt in the colonies. Toward the latter part of June, 1778, Colonel John Butler collected his tory rangers and a detachment of Sir John Johnson's Royal Greens, some four hundred in all, and with seven hundred fierce Seneca Indian warriors from Central New York prepared to descend the Susquehanna River upon the Wyoming settlement.

Reaching the head of the valley, they marched upon Jenkin's fort, which capitulated on the 2d of July. A terrible crisis was now at hand. Nearly all capable of bearing arms were with Washington in the regular army, and the place was almost defenseless. A few rude forts or stockades had been constructed by setting logs on end side by side in circular ditches, forming an inclosure where the women and children might retreat in case of emergency. In the entire region, there was but a single cannon, a four pounder, kept as an alarm gun at the Wilkesbarre fort, and this was without ball. But though they labored under difficulties, and against superior means and numbers, they proposed not to give up their homes and lives without a struggle.

Forty or fifty militiamen, with a half-raised company commanded by Captain Hewitt, assembled at once. It was a signal for the general muster. Boys scarcely entering their teens took their places in the ranks, and their grandfathers, old and bent with age, and with their snowy hair flying in the gentle breeze, came forward to offer their services in the defence of their homes. Though weak in numbers, they felt strong in the right. They knew their cause was just, and they believed the god of battles would nerve their arms to strike the blow for home, kindred, and country. They would have preferred peace, but peace was not to be had. There was no alternative. They must fight or die.

The brave Colonel Zebulon Butler took the command, and led them out from Forty Fort to meet the enemy. The field of battle was a level plain, mostly covered with scrub oaks and dwarf pines. The settlers numbered between three and four hundred; their right wing, commanded by Colonel Butler and Major Garret, resting on a steep bank at the base of the mountains, and their left, commanded by Colonels Dennison and Dorrance, extended to a swamp densely covered with alders and brushwood. A little after four o'clock in the afternoon the bloody work commenced. Gradually the British forces fell back before the steady fire of the settlers, and the gallant heroes of Wyoming pressed forward. But the odds were too great. Six bands of bloodthirsty Seneca Indians were massed under cover of the woods on the left, and now their time had come. With blood-curdling war whoops, they rushed upon the white defenders like the whirlwind. The men fell rapidly before the rifles of the red men, and ere long it became necessary to fall back and reform in better position. The order was mistook for one of retreat, and soon the men were rushing hither and thither in wild confusion. Colonel Butler saw the situation, and his heart almost seemed to bleed for the settlers.

Regardless of danger, he rushed between his own forces and those of the enemy and frantically exclaimed: "Don't leave me, my children, and the victory is ours." But it was of no avail. The battle was lost.

Now commenced the dread massacre. The unrestrained savages closed in about their victims and slaughtered them without mercy. The heavy thud of the tomahawk, and the sharp ring of the merciless scalping knife, mingled with the horrid yells of exultation, rang over the plain proclaiming their tale of death and woe. The fugitive plunging through the forest and across his clearing, pursued by a yelling band of war painted demons, beheld his home and stacks of grain in flames. In terror he paused a single instant, and then sank beneath a blow from his pursuers. In one spot, just back of Mr. Gay's house, near the river, sixteen men were formed in a ring, around a rock, and being held by stout Indians, a squaw went around with a knife and tomahawk, butchering and murdering them in the most inhuman manner. One of the settlers, a Mr. Hammond, concentrating all his muscular powers with an almost superhuman effort, broke from his captors, dashed away, and escaped. The rock is still shown, and is known as Queen Esther's Bloody Rock. A little farther on nine more were murdered in a similar manner.

Terrible scenes and incidents occurred in every direction, and examples of heroism, devotion, and self sacrifice were met with everywhere. At night, the glare of burning buildings lit up the valley and reflected their red light upon the sky in many places. A black cloud of smoke rolled up over the forest, warning the fleeing settlers that their homes were but a thing of the past.

Who can paint the horrors and sufferings of the broken bands of fugitives during their long and fatiguing journey through the wilderness to the land of civilization? One hundred and fifty widows and six hundred orphans houseless and homeless, fleeing in scattering bands like frightened sheep through the dark forest, with infuriated savages dashing hither and thither among them, braining one and scalping another, and rendering the night hideous by their whoops and furious yells, presented one of the most horrid pictures of war. Of all the brave heroes who went forth to battle for all they held dear, on the fatal afternoon of the memorable 3d of July, only sixty survived. In one company of a hundred fleeing fugitives all but a single man were women and children.

Old white haired men put forth all their strength, and tottering upon their canes essayed to escape. The watchful eye of the savages espied them, and they fell beneath a blow of the unerring tomahawk. A dark form would bend over them with a dripping knife, and the next moment another gory scalp would hang dangling from his bloody girdle. With a piercing yell of mad delight he would then dash on after his murderous companions, to drag others from their hiding places and gorge themselves with blood and plunder.

But we forbear longer to picture the horrors of the scene. It was enough to appall the stoutest heart. Those who have experienced the work of savage warfare can only realize the horrors of an Indian massacre. Fond mothers clasped their infants to their bosoms, and trembling, rushed their feeble cries, fancying in the rustle of each leaf the stealthy tread of a lurking savage, and taking a last look at their smouldering homes, and the loved spot where with their husbands they had toiled so long and earnestly, they turned their faces in the opposite direction, and with courage and fortitude amid the pangs of hunger, starvation, and fatigue, they toiled on for weary days, through dismal swamps and dark forests, appropriately termed the "Shades of Death," over the rugged Pekona Mountain, and on to Stroudsburg and other places, where for a season they found relief and rested.

The beautiful settlement was virtually ruined and abandoned; and though a few returned, by far the greater number begged their way back to Connecticut, contented and willing to give up all their disputed claims, and remain in the land of civilization. Reader, this is no fancy sketch. The horrors of war cannot be painted too black. The dead bodies that lay festering in the forest all summer, proclaimed the double barbarity of the bloody deed, and seemed to cry in the ears of mankind, to brand the *tory leaders* of their own race with everlasting infamy.

One hundred years have rolled away. Wyoming Valley is filled with a rich and industrious population, church spires point heavenward, thriving towns and villages have sprung up, the steam-whistle echoes over the plain, and it is a world of enterprise and activity. The Indian warrior has long since passed away, though a remembrance of his cruel deeds remain. The bones of the unfortunate victims of the terrible massacre have been collected, and a beautiful monument marks the spot.

THE misery of human life is made up of large masses, each separated from the other by certain intervals. One year, the death of a child; years after failure in trade; after another longer or shorter interval, a daughter may have married unhappily. In all but the singularly unfortunate, the integral parts that compose the sum total of the unhappiness of a man's life are easily counted and distinctly remembered.

A contented mind is the greatest blessing a man can have in this world.

Cultivation of the Quince.

The quince tree grows from eight to fifteen feet high, when cultivated as a single tree; but more generally we find it grown with six or eight stalks from a single set. As it is subject to the apple-borer, which often destroys the single stalk, it is much better to let it sprout naturally so as to give them a number of stalks.

Either in the spring time, when covered with its large white or pale pink blossoms, or in the autumn when loaded with perfumed or golden fruit, it is an ornament to the garden and the orchard. It is common to the homesteads of New England, every family raising enough for home use, and generally some for a ready market.

Of late years much interest has been developed in the cultivation of this fruit. The increasing demand in the market; the enhanced value, it having doubled in price during the last fifteen years, now commanding four dollars per bushel in the garden; its invaluable qualities, both as a delicacy of the table and a necessity in popular consumption, all conspire to make its successful cultivation a business of great profit. Some experiments in growing the quince as a farm crop, where the ground has been richly cultivated, with the trees six to eight feet apart, have realized several thousand dollars an acre—one instance reported in New Jersey going as high as ten thousand dollars. In all such instances, however, we are to take into the account the long years of preparation and growth before the trees will bear, and also the continual failure of the trees themselves from the destructive action of the borer. When grown in this manner, some root crop may be cultivated between the trees which will, in part at least, pay for the labor bestowed upon the orchard.

But the cheapest and most successful orchard I have seen grown, and one that is annually loaded with fruit, is located at the south-east side of a hill where the soil is moist with small springs and rich and soft with the wash and leaves that come as a mulch to the land. There is no labor bestowed after planting; the ground is left like an apple orchard to itself; but then every autumn the proprietor gathers three quarters of a bushel of the best quinces to a single bunch, and sells the same at three dollars a bunch at his house. One hundred such clumps is three hundred dollars every year.

One farmer has a brook coursing down the mountain and running across his meadow, on the banks of which I have seen the quince flourish with no other aid than the genial moisture of the soil and the balmy sunshine. So, too, I have seen them flourishing and caring for themselves along the sheltered side of stone walls, where the leaves drifted in the wind till their annual deposit wrought a mechanical condition in the soil, which uniting with the moisture from the stone combine to make just the soil for this valued fruit. On the borders of the garden, especially if there is a side that gets the wash, the trees are planted and grow there during the lifetime of the planter. And I have seen the trees with their golden heads rising over the mournful ruins of the once flourishing homestead. The places I have indicated, and all similar localities, are the natural home of the quince. Get the roots, or take cuttings and set them in loose moist soil, give them care—they will pay you for it—and after three or four years you will have fruit for yourselves, and after you will your children enter into the joy of your labors. The apple and the pear are the two best varieties of the quince for cultivation; these will always sell in the market at five times the value of apples.

The Sunflower as a Disinfectant.

It has become quite well established that sunflowers are disinfectants, and that they are a preventive of miasmatic fevers. A gentleman living on the banks of the Scheldt has cultivated the sunflower extensively on his property adjoining the river, and there has not been a single case of miasmatic fever among his tenants for years, although the disease prevails to a large extent in the neighborhood. The sunflower in its growth absorbs a large quantity of impure gases, feeding principally by its leaves. It absorbs nitrogen more rapidly than any other plant, and evaporates as much as a quart of water a day.

ALL philosophy lies in two words, "sustain," and "abstain." EPICETUS.



THE HIPPOPOTAMUS AND ITS YOUNG.

THE HIPPOPOTAMUS,

Or, Behemoth of Holy Writ.
A SKETCH OF SAVAGE AFRICA

The study of the animated world is ever a field of interesting instruction. The vegetable world displays the wondrous skill of the Creator in a thousand different ways; but the animal kingdom, which it supports by its life sustaining properties, seems removed a step higher and nearer to man's own self, and appears to claim a stronger share of his attention. The horse and dog have been the friends and companions of man from the remotest ages; and they appear to administer more to his wants, and to be more gifted with intelligence than any other representatives of the brute creation. With them as his companions, he traverses the dark forest, threads the intricate jungles of the torrid zone, and boldly attacks the most formidable beasts of the tropical regions.

The smaller animals, like the mole and squirrel, excite his admiration and delight; as he views them ever busy, skipping from limb to limb, and running along the ground, gathering nuts or grain to store up a winter's supply—the marmot or woodchuck displaying his engineering qualities in the construction of his underground dwelling, and hundreds of others furnish lessons of pleasure and profit.

The larger and more ferocious beasts like those that inhabit Africa and India, have a fiercer aspect and at first sight, naturally strike the mind with something akin to terror. Yet they generally flee before his stern presence and commanding mien, and as he beholds himself master of the situation, he realizes that he is really "Lord of the fowl and the brute," and his mind is inspired with courage and intrepidity.

Prominent among the larger land animals is the Hippopotamus, or Behemoth of Holy Writ. It is also sometimes known as the River Horse, and abounds extensively in the rivers and lagoons of Africa, to which country it is exclusively confined. Of all the huge beasts of the tropics it presents the most uncouth appearance. Its short thick legs are like great pillars of flesh. The feet are large with four toes, terminated by separate hoofs. Its ponderous body is little inferior in size to that of the elephant. They have been known to measure seventeen feet in length, and fifteen feet in circumference. Being largely composed of immense masses of fat, their form is rounded, and when on land, exceedingly awkward and unwieldy in appearance. The head is very thick and bulky, and the mouth enormous, armed with huge white tusks, sometimes more than two feet in length, giving it a fierce and formidable aspect. Its diminutive black eyes are situated high up in the head, and the ears are small and pointed. The skin, which is sometimes more than an inch in thickness, is destitute of hair, and of a dark dirty brown color, often discolored by mud, and bearing upon its surface unsightly cracks and warty excrescences. On land, it is extremely slow and clumsy; but in the water, it swims and dives like a duck.

During the day it stays in the river, in places where the water is deep and still, over-arched by trees, which form a canopy of rank vegetation, shutting out the fierce rays of the burning sun, where apes congregate and chatter, and the serpent glides silently among the ferns, while the huge boa-constrictor lies coiled among the thick branches overhead, and the air is filled with the hum of bees gathering honey from the myriad sweet-scented flowers of the shrub and vine. At night he generally comes out upon the land and saunters along the shore, feeding upon the reeds, rushes, and other coarse herbage found growing along the margins of streams, and occasionally enters the rice and cane fields around the native villages, where it tramples down and destroys far more with its enormous feet than it eats.

When unmolested, the hippopotamus is generally inoffensive, and dives beneath the water on the approach

of man; but he is quick to resent an injury, and when once aroused, he becomes frenzied with rage and formidable to combat.

The natives hunt the hippopotamus for its teeth, and sometimes for its flesh. Several different modes are practiced for its capture, the most common of which is that of river spearing. A number of natives arm themselves with spears or barbed harpoons, with handles and ropes attached, and embarking on a light reed raft, proceed down the current to where behemoth resides. The lookouts who are ever on the alert, soon perceive dark spots like little mud-banks, rising here and there above the still water, producing a slight ripple and then disappearing. This is the nose of the Hippopotamus, thrust up to breathe. Silently the rude raft floats down the stream, and at length it strikes full against the bulky form of the unconscious beast. Arousing himself, the raft is heaved upwards as if by an earthquake. Leaping forward, the spearmen bury their harpoons in the monster's back, and await the shock. For a moment, perhaps, he flounders fearfully in the water, and the raft is shaken violently; but the men generally keep their places, and when he dives to the bottom, they slip off in a canoe, and draw the ropes attached to the harpoons tightly around the trunk of a tree. He soon comes up enraged to fury; and dashing this way and that, with loud bellowings and detonations, seeks to destroy everything within his reach. The ropes hold him fast, and for a while the hunters let him exhaust his rage and strength in vain charges, and then they fall upon him. Blood soon flows in great streams, and at length he falls forward upon his knees, rolls over upon his side, and with a maddened, sullen roar expires.

Another method is that of the "dead-fall." A log of wood, with heavy stones and harpoons attached, is hoisted over the path he frequents in his feeding ground near the solitary lake he inhabits, and held in its place by a rope running over the branches of some tree, down to the ground, and thence across his path in such a manner, that he will walk against it, throwing it from the trigger which holds it in its place, and letting the loaded harpoon descend upon him like a thunderbolt from overhead. The wound is deep and fearful; and if it has been properly arranged, death is the result.

Often during cool moonlight evenings, the lagoons and marshy pools, far removed from the native settlements, present a strange and animated picture, which the African hunter does not soon forget. The majestic elephant stalks along the shore in herds, and enters the water to drink; occasionally raising his trunk, and silently listening for any unusual sound that may attract his attention; the huge form and upraised proboscis standing out in bold relief against the starry sky beyond; the huge rhinoceros with his uncouth pachydermatous brother, the hippopotamus, trample down reeds and aquatic vegetation along the sloughs and inlets, plowing up the rich black mud, and uttering a low guttural sound something like the grunt of a hog; the antelope and giraffe, or camelopard, with their long necks elevated, come timidly forward, often in large herds, to drink of the sparkling water and return, altogether making up the lively scene of animated nature as viewed in the remote wilderness of savage Africa.

Sometimes the huge beasts meet in deadly conflict; and the scene presented is one of the most fearful that earth witnesses. They rush to battle with tartarean roars that awake the echoes of the surrounding hills, and break the stillness of the night with their deadly struggles. Branches of the trees and bushes are rent and torn; the ferns and rushes are trampled in the mire, and often the seamed and furrowed ground is dyed red with blood. The elephant and rhinoceros frequently engage in these terrible encounters, each seeking to destroy the other; the one with his long ivory tusks, the other with his formidable horn. At such times, the struggle is terrible beyond all power of description. The very earth seems to tremble beneath the mighty shock. The other animals flee from the scene, and the

combatants are left to pursue their deadly work alone. The elephant is generally victorious, though sometimes the rhinoceros gets a temporary advantage, and disembowels his adversary in a moment. In his mad and insane rage, and with eyes glowing like red balls of fire, he rushes upon his fallen foe, and plowing great rents in his prostrate body, sickening to behold, he gloats for awhile over his dead antagonist, and then leaves his mangled body to fester in the morrow's sun, or be devoured by the vultures or hyenas of the surrounding forests.

Such is the savage nature of the untamed denizens of the wilds of central Africa. Man almost shudders at the bare recital. And yet, if he would pause to examine the heart of mankind, he would find *him* desperately wicked; and when the baser passions are fully aroused and uncontrolled, he would find him exhibiting all the ferocity of the savage beasts of the African jungles. Look on the field of battle when the contending hosts meet in battle array. See them applying every instrument of destruction that savage ingenuity can invent. Witness the work of the barbarous bombshell, and the showers of destructive grape and canister, mowing down whole platoons. Behold the awful charge, and hand to hand conflict that is to decide the result. Whole companies of horsemen ride over the field, crushing the bones and mangle the bodies of the wounded and bleeding beneath the iron hoofs of their chargers, regardless of their dying groans and appealing cries for mercy. They plunge the dripping bayonet through the heart of their fallen foe, and their gleaming sabers drink the life blood of their brother man, leaving widows to mourn and orphans to cry for bread. The blood of Christianized humanity curdles with horror at the contemplation. Can anything in the realms of savage ferocity be more atrocious? When man lets his passions loose, then, how much is he raised above the most formidable of wild beasts? And being a reasoning and sensible being, endowed with judgment and wisdom, how much more is he accountable for his earthly deeds? Let us learn a lesson from the savage beasts that will shame us for not holding our passions in check; that will cause our better feelings to govern our temper, and frown down every attempt to quarrel and fight; that will arouse the spirit of compromise, and destroy the bloody hand of war; that will put to shame every immoral or dishonest principle, and lead us to the glorious paths of virtue, friendship, conciliation, and peace.

Cloves and Pepper.

BY CAPT. CARNES.

The clove tree belongs to the family of myrtles. Its small lanceolate evergreen leaves resemble those of the laurel, and the flowers grow in bunches at the extremity of the limbs. They first appear at the beginning of the rainy season; they are in the form of long greenish buds, from the ends of which the expanded corolla shows a delicate peach-blossom color. When the corollas begin to fade the calyx turns yellow, then red; the calyces, with their forming seeds, are at this time plucked from the tree, and after drying in the sun, become the cloves of commerce. If the cloves are not gathered just at this time the seed enlarges, the calyx expands, and much of the pungent properties of the clove is lost. The whole tree is aromatic, and the footstalks of the leaves are nearly as odorous as the flowers.

As an ornamental tree the clove is unrivalled. Their noble height, their beautiful form, their luxuriant foliage and spicy fragrance conspire to make them "a joy forever."

It requires a favorable soil and climate to develop the oil and resinous qualities peculiar to this tree. In the larger islands of Eastern Asia, and in Cochin China, it has little flavor. In the Moluccas the clove comes to perfection without cultivation. It is planted in Zanzibar, Cayenne, Bourbon and Trinidad; but from Amboyna comes the best quality, and in quantity ranging up among the million pounds.

Pepper, although not so costly as cloves is of greater commercial value because the consumption is immense. The pepper-vine supports itself by twining around poles placed for it, or, as in many plantations, it is placed near the mango and other straight trees, the trunks of which it festoons with elegant bunches of fruit. The pepper leaf is large and bright green in color, and re-

sembles the ivy. It flowers in June after the rains begin. The greenish white blossoms are followed by pungent fruit that grow in clusters like grapes.

Pepper grows on the Malabar coast in Sumatra, Borneo, Java, and Singapore; and its cultivation has been introduced into Cayenne and the West Indies. The black and white varieties are the product of the same plant, the latter being naturally bleached while lying on the ground, or artificially prepared, which may add to its commercial value, but detracts from the strength and flavor of the spice.

Of later years, in the mania for adulteration, the ground pepper is too often mixed with other substances unpalatable if properly analyzed; and it would be preferable, if practicable, to purchase the round peppercorns and reduce them to flour by pounding in a mortar. Some such method ought to be revived whereby to prepare both coffee and spices, for by no other means can we be sure of obtaining the genuine articles.

The Old Rag Picker's Savings.

BY CORA BELLE.

There was a peculiar character in our village known for many years as "Granny Dixon," who illustrated well the value of small accumulations, when wisely assorted and disposed of. She went poking about the streets every day with her coarse bag on her back, gathering up all the old papers floating about, the rags and bits of string, even old bones and empty bottles. She always made a circuit of the college buildings before her return, looking sharply along on the ground under the windows, and always sure of finding something worth carrying away. The students were always ready to chaff with Granny, who was never at a loss for a smart repartee, and roars of laughter used sometimes to greet a youth who found he had met his match in the burly old rag-gatherer. She was always profoundly grateful for any little gifts, as a pair of old socks, a worn-out vest, or a pair of torn pantaloons. If they would not fit "old grandad's" portly proportions, they would at least serve to patch him. He was an inoffensive old fellow, whom his wife kept in good order, and who sometimes sawed up an arm-load of wood or two for the neighbors, but mostly he sat on his cosy little porch, or by his English fireside, and smoked his pipe of peace. They were "old country" people, and loved the old ways best. Their snug little home with its small garden filled to overflowing with choice fruits large and small, was near my father's, and I have spent many an evening hour in childhood reading to the old folks, as neither of them could read.

Both died at last, and it was found that Granny's "pickings" had amassed a snug little fortune, besides her house and lot, which was all left to a poor niece in England, who came over with her large family and thankfully took possession of it. The old people had lived in the greatest comfort, according to their tastes, and their little gatherings had provided well for a large household after them.

A Nice Little Home Amusement.

Many very pretty little chemical experiments may be made by the young people, which will amuse and astonish those around them. As for instance, with so simple an article as red cabbage, a very beautiful effect can be rendered in the following manner: Cut three leaves of cabbage into small pieces, and after placing them in a basin, pour a pint of boiling water over them, letting them stand an hour; then pour off the liquid into a decanter. It will be of a fine blue color. Then take four wine-glasses; into one put six drops of strong vinegar; into another, six drops of solution of soda; into the third, the same quantity of a strong solution of alum; and let the fourth glass remain empty.

Fill up the glasses from the decanter, and the liquid poured into the glass containing the acid will quickly become a beautiful red; that in the glass containing the soda will be a fine green; that poured into the empty one will remain unchanged.

By adding a little vinegar to the green, it will immediately change to red; and on adding a little of solution of soda to the red it will assume a fine green, thus showing the action of acids and alkalis on vegetable blues.

Blood Poisoning.

BY L. C. P.

In the belief that effects as various almost as the persons in whom we find them, are the direct or indirect result of the cause expressed in the above caption, we shall proceed to relate a few instances as they have come under our observation.

Not to be too personal, we will proceed alphabetically. A. was a healthy person of forty-five years. For eighteen or more of these last years, had not known a sick day beyond occasional colds. Went to live in a house where on one side were flats not yet filled and marked off into building lots, and consequently used to dump dead cats and such other produce as the "best families" don't want in their yards.

In a few weeks the spring rains came and health failed. Poison, when spoken of, was but the phantom of a diseased imagination, and a lame back caused by what somebody else called piles when they were so, and a swollen knee, feeling as if it was twisted for several weeks, was what so-and-so called "rheumatism—had it frequently," etc. The melody of the frogs proclaimed it blood poisoning—genuine malarial neighborhood.

B. was a mother, who—but with the sickness consequent on that relation—had reared to man and womanhood her family, and went to live in a house where the closet had a vault, over which, under the same roof, were rooms—very finely finished rooms, too—for sleeping rooms, with plenty of large windows, blinds, etc. Not thinking of poisonous gases, which were but rarely perceptible, she grew sleepless, nervous—a complaint she had not suffered from before; grew large, filled up, as it were, with dreadful sensations in the eyes, as if gurgling, rushing water, or rather the sound thereof, was behind them and gushing over the brain.

She was told it was not unusual at her time of life, and was treated as if the suffering could be alleviated thus and thus, and although protesting that it was from poison in some form, from the green carpet, or the green dress, or some other green thing; no one thought of the real cause—closet gases. Was it not strange, in the many months that woman was under the care of the most eminent physicians, that the symptoms which baffled them were not recognized. After health was partially restored, by change of air and residence, living in a house where everything was conducted into the sewer, she was again affected in the same way, then knowing it was from poison gases. Other members of the family were differently affected. One sneezed—had what is now called hay-fever. One had a most fearful sore on his lip, his wife one on her arm. In that house there was no apology for a trap to keep the sewer gas back.

After consultation with the city engineer, who thought there could never be good drainage there because of the level (still the water found plenty of descent), and vain endeavors to get relief from sewer vapors, they moved out. Other families moved in and out, until at last the proprietor said: "If you want the house move in, and if you don't like it, hold your tongue about it." Now would not the authorities of any city look to it and condemn a house as unfit to live in, if it were giving fever or small pox in the same ratio.

C. moved with a small family into the chambers of a pretty house. Everything looked lovely, cellar clean and dry, (an August drouth,) closet in the shed, a vault; the most important questions were: "Are you not troubled with closet vapors?" "Oh no, never!" "Is the drainage all right?" "Perfect! I paid so much to enter sewer." Well, the first washing done, the water poured into the sink stayed on the cellar floor. They had thrown it on the ground all summer because it backed in, and always had. C.s stay did not exceed a year.

D. lived in a house where the sink waste-pipe brought back such odors as no words can describe. The good wife knew it, but "she always made up her mind not to complain of what she could not mend, and as it was not her house, she could not let it be remedied out of her means." The husband had the "filling-up" trouble, their only child got chronic "hay-fever." They would not believe that an open sewer could give such results as blood poison, because if the water run off, they thought all was well.

The last case we shall give you is one whose several years of exposure to noxious gases has caused more or

less of the above described symptoms and the late rapid enlargement of the liver and spleen, and otherwise producing such deleterious effects on a once vigorous constitution, as would convince those who have been skeptical as to whether there was really any grounds of complaint, that such grounds were not wanting.

An Irish Elliot.

"Well, Pat, how do you get on with your work?" asked Mr. Maginnis, the landlord of the "Game Chicken and Tobacco-pipes," in Castle Island, County Kerry, Ireland, of Pat Murphy, the village Dick Tinto, who was busily engaged in putting the finishing touches to an elaborate representation of a pugnacious fowl with a gorgeous tail, designed for a "pictorial advertisement," or, vulgarly speaking, signboard, for Mr. Maginnis's hostelry, which proffered "entertainment for man and baste," to all and sundry who might pass that way. "How do you get on, my boy?" "Oh, faix, elegant," answered Pat. "Sure 'tis high art, it is, and no mistake. Haven't I to stand on the dog-kennel to rache up to id?" "Don't you think that bird's tail is a little out of drawing?" said Mr. Mack, putting his hands under his coat-tails and looking at the painting with the air of a connoisseur. "Out av dhrawin', is id?" said Pat. "Troth 'tis the best of drawin', it is, bekase it'll dhraw custom to yer hotel, and sure that's the dhrawin' ye want, Misther Maginnis, av I don't mistake." "Very good, Pat," replied the worthy host, "but I don't think I ever saw a game chicken with a green comb before. It's not natural." "Not natural?" retorted the artist. "Av coorse it's not natural. Who wants nature in a high-art picture? 'Tis idayal, it is, Misther Mack, and pathriotic. Isn't it an Irish fowl, and isn't green his native color?" "But, Pat, you've made the ground red." Av coorse I have. Sure the green ought to be above the red, ever and always. And the thrue principles of high art is to convey idayal impressions through the manes of matyrial objects, so hould yer whist, and lave the fine arts to thim that undherstands thim."

Silicon.

BY JAS. P. DUFFY.

Silicon, after oxygen, is the most abundant, and widely diffused of all the chemical agents. It is a powder of a dark-brown color, and occurs in combination with oxygen as *silica*, and in combination with oxygen and various metallic elements, as silicates of those elements.

Silica, silic, or silicic acid, occurs in nature as quartz, flint, rock-crystal, &c.; in a crystallized state, it is often noticed on the outside of some kinds of grasses. It occurs also in plants, particularly in the outer covering of the stalks and the husks of grain. The cuticle of rattan, for example, contains a large amount of silica, and the value of the plant called horse-tail (*Equisetum*) as a scourer and polisher, on the great quantity of silica contained in it.

Silica is composed of one part of silicon with three of oxygen, and as it occurs in nature, is incapable of being dissolved in water, but dissolves with more or less difficulty in caustic soda, or potash, forming sodium, or potassium silicate. The potassium and sodium silicates are used in the arts under the name of water-glass. The principal use made of this water-glass is, as a preparation for coating stone liable to decay from atmospheric influences. It is also extensively used by calico-printers and soap-makers.

In a commercial point of view, however, the most important use of silica is that of the manufacture of glass of all kinds and quantities, of which it is an essential ingredient. For this purpose, sand is fused with soda, together with a little oxide of lead, to give it fusibility. The metal, as it is called, is kept in a state of fusion for some hours, until all the ingredients are completely mixed, when it is ready for working.

The color of glass varies, the green color of the bottle-glass being due to the presence of ferrous silicate; cobalt silicate gives a beautiful blue, manganese silicate a violet, and copper silicate, a ruby color to the glass.

If a proper proportion of alkali be employed, ordinary glass is unacted on by air and moisture. The lapse of time, however, indicates that a very slight action takes place on most kinds of glass, though the progress is slow. Hydrofluoric acid is the only one in which silica is soluble, and is accordingly employed in etching on glass surfaces.



EBB-TIDE.

On a summer eve, when the tide was low,
An old man sat in the golden glow,
The waves were washing their sandy stones,
And calm and sweet were their languid tones:
He looked, and listened, and softly sighed,
As he heard the voice of the ebbing tide.

He had passed his threescore years and ten;
He had smiled and wept like other men.
Brother and parent, friend and wife,
Had drifted o'er the sea of life
To the peaceful shore where saints abide;
But he was left by the ebbing tide.

Left—all alone with the dreamy past;
A battered hull on the shingle cast,
No more to ride on the seething main,
Nor feel the shock of the storm again;
He lay at peace by the ocean side,
To wait the coming of Death's great tide.

That solemn tide, with its voiceless roll,
Shall bear on its waves that weary soul
To the blessed land where the angel throng
Will hail its coming with holy song.
And the home of that faithful heart shall be
A place of rest by the crystal sea!

Go That Way Yourself.

There is practical wisdom in that comment of Josh Billings, with regard to the precept "train up a child in the way he should go." He says "it is a good plan to go that way two or three times yourself."

Parents often miss it, by giving a pound of precept for every ounce of example. Too often the example sets quite the other way, and sharp-eared children are not slow to perceive the discrepancy.

If a mother instructs her child carefully in the duty of always speaking the truth, and then goes on to make a great fuss over the detested Mrs. Parker, telling her "how delighted she is to see her," and begging her to stay to tea, depend upon it "there's a child there takin' notes." If she does not hear from it some day it will be surprising.

"Did you really like that piece of fancy work, mother, or did you only say so," asked a young lady of a friend of mine. It came out that mother "only said so," and it did not strengthen the faith of the listener in her general sincerity.

The father who would see his son grow up an honest, honorable man, must beware of any double-dealing, either with him or before his eyes. It does not strengthen a boy's faith in his father's integrity to have the calf that was given to him sold, and the proceeds put in his father's pocket. It angers him to have father sell the berries he had toilsomely picked, and then invest the money in chewing tobacco. There are parents as mean, though I hope not many.

"Go that way yourself," if you wish your child to walk in the straight way, and be patient, and rebuke lovingly even his short-comings, remembering with humility how many times you also have stumbled before him.

Salt.

BY JAS. P. DUFFY.

Salt is a natural mineral which, when pure, is a colorless, transparent stone. It crystallizes in cubes, dissolves readily in about three times its own weight of water, and possesses an agreeable taste, which, on account of being familiar, is the representative of that taste called *saline*.

The sources of salt are three in number—salt beds, saline springs and sea-water. In all cases in which the salt is in solution with water, it (the salt) is obtained by evaporation. This is effected by fire, and in warm, sunny countries, by the heat of the sun. When found in beds, if sufficiently pure, the salt is mined in the same manner as any other ore; but when it is mixed with earth or other impurities, its solubility in water is availed of in working the bed. Water is let into the bed, and allowed to remain there till it has become saturated; the brine is then pumped out, and the salt obtained by the evaporation process, which produces a hard, coarsely crystallized salt. Fine grained table-salt is obtained by boiling down the brine rapidly.

The uses of salt are many and greatly varied. Its preserving qualities are applied in the preservation of fish and meat. It is extensively employed by potters in glazing earthenware. Large quantities are used in preparing sodium sulphate, from which common soda is made. It is also the source from which chlorhydric acid is obtained. The addition of common salt to the food is usual everywhere. In one part of the world, among the inhabitants of the many islands in the Pacific Ocean, north of Australia, it is used in the form of sea-water as a sauce.

Salt is contained in the blood in as great a proportion as it is scarce in the natural aliments; in animal food the blood and cartilages are provided with the greatest proportion of common salt, and these are just the parts which we should, but do not, partake of in the greatest quantity.

Common salt is as digestible as it is nutritious; for water dissolves it with ease; and while the body cannot exist without salt, it appears to be the most important addition to food, justly meriting to be the best of all condiments. The common salt of our kitchens, however, is not the purest. Rock salt is generally the purest, as containing less elements foreign to pure chloride of sodium. which constitutes salt.

Weights of Boys and Girls.

Upon the average, boys at birth weigh a little more and girls a little less than seven pounds. For the first twelve years the two sexes continue nearly equal in weight, but beyond that age the boys acquire a decided preponderance. Young men of twenty average one hundred and thirty-five pounds, while the young women of twenty average one hundred and ten pounds each. Men reach their heaviest weight at about forty years of age, when their average weight will be about one hundred and forty pounds; but women slowly increase in weight until fifty years of age, when their average weight will be one hundred and thirty. Taking the men and women together, their weight at full growth will then average from one hundred and eight to one hundred and fifty; and women from eighty to one hundred and thirty. The average weight of humanity all over the world, taking the ages and conditions, working men and women, and gentlemen and ladies without occupation, black and white, boys, girls, and babies, is very nearly one hundred pounds avoirdupois weight.

Origin of Indian Names.

The Sioux Indians name their papposes after events transpiring at the time of their birth. As illustrative of this peculiar trait, Red Cloud is known to have taken that name from the fact that the western sky was over-spread with red clouds at the moment of his birth, while the bringing of a captive horse with a spotted tail gave the now great chief the singular cognomen of Spotted Tail. Sitting-Bull received his name because a buffalo bull was, by a lucky shot, thrown upon its haunches in plain sight of his mother's tepee at the natal hour, while the coverings of a fractious pony furnished a name for the redoubtable Crazy Horse.

Gossip.

While it would scarcely be just to say that all the gossip in the world is set afoot by woman, we fear that she is possessed by that demon to a much greater extent than man. If this gossip was always harmless, the evil of tattling would be less. Unfortunately, however, this is not the case; not only are matters of but little consequence rolled under the tongue like a sweet morsel, but characters are torn to shreds, and circumstances that should be covered over by the veil of silence, are ruthlessly exposed by the eager gossip. The more disgraceful the event, the greater pleasure does the tattler take in its discussion, the more earnest is she in her efforts to disseminate the shocking tidings. She knows no fear, and, alas! she knows no mercy; she has got hold of something worth talking about, and she hugs it to her heart as a treasure of great price.

This eagerness to gossip about the affairs of others is a terrible flaw in the character. Gossip is rarely good-natured. She goes about with a poisoned dagger. She is the meanest goddess to worship, because she is full of malice and all uncharitableness. She strikes in the dark, and knows no pity.

The Greeks represented the Harpies as women of frightful countenances, with serpents in their hair, and holding the torch of discord. Were we to paint the gossips of society, the modern Harpies—it is thus that we would portray them—women of frightful countenances, with hissing serpents twined in their hair, and holding the torch of discord.

In 1709, an edict was issued at St. Helena for the punishment of gossips. The ordinance was as follows: "Whereas, several idle, gossiping women made it their business to go from house to house about the island, inventing and spreading false and scandalous reports of the good people thereof, and thereby sowed discord and debate among neighbors, and often between men and their wives, to the great grief and trouble of all good people, and to the utter extinguishing of all friendship, amity, and good neighborhood; for the punishment and suppression whereof, and to the intent that all strife may be ended, charity revived, and friendship continued, we do order that if any women from henceforth shall be convicted of tale-bearing, mischief-making, scolding, or any other notorious vice, they shall be punished by ducking or whipping, or such other punishment as their crimes or transgressions shall deserve, or the governor and council shall think fit."

After so terrible a threat as this, no doubt the women restrained their tongues, tranquility and peace was restored, and the reign of gossip was forever over at St. Helena. If such a punishment as this was inflicted upon the gossips of New York, we fear that there would be in the whole city very few dry women, or women whose tender shoulders did not ache from the effects of the merciless lash.

No Tact.

A person may live just as long without tact, but he cannot live half as pleasantly, nor make it half as pleasant for those he is associated with. Think twice, girls, before you accept one of these blundering fellows who are always saying just the wrong thing to the wrong person. It is a pity for them, to be sure. They cannot help it any more than a color-blind person can help his defect; but they do not often get the charity that might be extended to them if this was a more charitably disposed world. It is not inclined that way, and the poor tactless fellow makes hosts of enemies as he goes along, where he may desire most earnestly to make friends. Choleric folks are thrown into a rage at some unlucky remark, by which he "did not mean anything," but which had a most offensive sound.

Everybody dreads them, for they are sure to open the door of "the skeleton closet" of the house, or tread on the tenderest "corns" of their neighbors, and all in the most innocent, matter-of-fact way. You have seen such a blunderer bring the flush to some delicate young girl's cheek, by asking before a room-full after that unfortunate brother of hers, who ran away with the contents of her father's safe; pursuing his inquiries with great interest; asking if they had ever got any clue to his whereabouts, or had ever been able to recover any of the money. He did not mean any harm, though he has agonized a sensitive heart, and made all about him burn with indignation. Suppose you took him to task for it, he would probably look at you with surprise, and remark, "Why, I did not suppose she would care, seeing that everybody knows it."

The apologies of such people, when they find out their offense, is often the worst part of it. They plunge still deeper into the matter, and when they have driven their poor victims to the verge of distraction, are only led off the hunt by some resolute, compassionate bystander, who is forced, metaphorically, to seize them by the coat collar to effect his purpose. The fault of all this may lie, in a measure, in the natural habit of the man; but much is due to education, or the want of it. Mothers can do much towards implanting a tender, delicate regard for the feelings of others in very young children, and this spirit diligently nurtured will make a great difference when the individual is grown. Children do not forget these early lessons, but they are graven with a diamond pin on waxen tablets, "Wax to receive, but marble to retain."

Fruitful Age.

We are all either old or growing old, and we are all, therefore, interested in the question, which is often discussed, whether the faculties of the mind may go on increasing in strength to the last, or whether they must necessarily partake of the gradual failure of the bodily powers. A writer in *Blackwood's Magazine* enumerates many striking instances of the display of great intellect in advanced life. Sophocles, he reminds us, composed one of his finest tragedies—the "Edipus at Colonus"—when he was nearly ninety. Æschylus, at seventy-three, wrote his "Orestes." Simonides gained in his eightieth year the crown of victory over all competitors, by his "Dithyrambic Chorus." Pindar, the greatest of lyric poets, wrote with undiminished powers till past eighty. Metastasio lived and wrote until he was eighty-four; and Goldoni, who died at eighty-seven, wrote, after he had passed his fourscore years, some of his happiest plays. Wordsworth lived to eighty, and Goethe to eighty-three, with unfailing poetic power. To this list of great poets is added a notable catalogue of illustrious artists:—

Titian, whose pencil only dropped from his hand when he was stricken by the plague at nearly a hundred years of age. Michael Angelo, whose fervid brain carried him on with ever fresh creative power and imaginative capacity to ninety. Leonardo de Vinci, master of all arts and sciences, the fullest and ablest man in all directions, that perhaps ever lived, and who died at his easel, with undiminished faculties, at seventy-five. Tintoretto, whose unwearied pencil worked until he was eighty-two. Palma Giovine, who lived and exercised his art until he was eighty-four. Perugino, whose skill had not failed at seventy-eight. Rubens, who was irrepressible as ever at seventy. Teniers, who elaborated his groups and interiors until he was eighty-four; and Claude, whose pictures were still as charming as ever when he died at eighty-two.

The truth evidently is that the different faculties of the mind come to maturity at different periods of life. Memory and perception, for example, are strongest in youth. A child will learn a new language more easily than a grown person. A boy of fifteen will discover a bird's nest, or commit a list of names or dates to memory, more readily than a man of fifty. Those intellectual powers which are most needed in early life are most vigorous while the body is still immature and weak. It is therefore to be expected that in the decline of years other faculties of the mind, appropriate to that season of existence, should gather strength, even while the physical powers are failing. Especially reflection, which combines the results of long experience, to deduce from them general truths, and imagination which frames new creations out of materials stored in the mind, should at this time have their widest scope of action and their greatest energy.

Why this is not always the case is unfortunately too evident. All faculties rust and perish by disuse. The love of ease, which all feel more or less, is apt to grow with years, and, unless resolutely resisted, leads to a weak, repining, and useless old age. But those whose sense of duty, or love of their fellow-creatures, or zeal for improvement, lead them to resist this insidious and fatal influence, have their reward not only in the respect and affection which wait on them—the "honor, love, obedience, troops of friends"—but in the sense of usefulness and the gratifying assurance that the products of their mental exertions at this period may be the most valuable of all, as the best fruit of our orchards are those which ripen latest in the year.

SPRING TRIPS OVER THE FIELDS, —WITH— A TRAILING ROBE OF GREEN

Hark! the little birds they sing,
"Welcome, bright and sunny Spring!"
And the little children's feet
Patter down the village street.
Into woods and meadows fair,
Primroses and violets there,
Some to pick, and some to sing
"Welcome, happy, joyous Spring!"

Old winter has gone at last, and his lovely daughter comes "trailing her green robes over the hill-sides and meadows" as she gayly trips along. The breezes sport with her hair, the brook leaps up and laughs in her face as it goes dancing over the stones, sparkling in the sunshine. She flings white and rosy blossoms at the trees, and anemones and violets spring up beneath her feet. The birds in every tree-top welcome her and the young leaves hasten forth to rejoice in her presence. O, beautiful daughter of winter! lovely art thou in the freshness of thy youth—welcome are the blessings which thy hands scatter on every side. Thy smiles are more prized by the waiting children of earth than are rarest gems set in precious stones; for in them lie promises of golden grain and rich fruitage; of food and raiment, comfort and pleasure. Oh! the delight of roaming through the grand old woods, watching all their hidden treasures opening into new life! I know just where the violets' blue heads peep up beside fallen logs, tree roots, and the old ivy-grown wall where the brown leaves have sheltered them so long from the wintry cold. I remember the handsful I gathered to place in a pretty basket for an invalid friend, the last time that cousin Maud and I wandered down the old familiar path to the home of the sweet flowers, where they peeped modestly from beneath the green, dewy leaves. Then as we slowly wended our way back in the bright sunshine, and the sweeter sunshine of youth and health, how we lingered by the way to drink in the pure air, to note the soft clouds float slowly away o'er the clear blue sky, while the lithe winged birds alighted almost at our feet and caroled their sweet notes of melody in unmolested happiness from the trees.

Even now I know the dogwood is spreading its white banners to the breeze on many a sunny slope. I can see through memory's window the very spot where one stands, just at the edge of the grove, lifting its snowy tent from amongst the undergrowth of young oaks and sumach bushes. The slope in front of it covered with fresh young grass and starry forget-me-nots, reaches down to a tiny brooklet singing through the meadow, where the rabbit and field-mouse come to drink, and birds bathe and splash in the cool, rippling water. The sunshine is just as bright, the birds sing as gayly, the flowers bloom as sweetly as in those days so long ago; but *something* is gone which can never come again with any returning spring. Oh, youth and health! how beautiful ye seem when lost forever.

At the elm-tree's foot there lingers,
Pale as Spring's own pearly fingers,
The slender windflower, like a fairy—
Rightly named, so light and airy;—
And rises, without speck or flaw,
The ivy-leaved hepatica.
All unconscious of its grace,
The violet hides its modest face.
While, above, the columbine
And the lithe clematis twine.
Deeper in the forest, where
Silence fills the pulseless air,
And withered leaves, last year's farewell,
So thickly strew the ferny dell,
The lily, child of promise, dwells,
As pure as heaven's own asphodels.

These soft, balmy days stir my soul as no others can.

I feel like reaching out my arms toward sky and trees, and clasping something—I know not what. A feeling of longing and yearning. Do others have it, I wonder? Such days used to fill me with inexpressible pain and sadness, when I could go out only for a few moments in the sheltered porch, and looking around at everything in nature springing into new life, while my own life seemed withered and dead, would think of past springs whose beauty and joy were gone forever. But as the years go on, and I grow more accustomed to it, and am able to see a little more of the outer world, these feelings gradually cease. Nature takes on new and broader meanings to the earnest watcher of its revelations; and though sometimes a tinge of melancholy mingles with the sweet pleasure that I now feel in viewing these scenes, it cannot destroy it. I know there is an eternal spring, where I shall find what earth has lost for me; and this is sweet comfort. I know the beauty of earth and sky around us here are only types of a higher, holier beauty *there*, where it is fadeless, immortal.

Not long ago, two gentlemen, traveling in Europe, attempted the ascent of one of the Alpine mountains. Though, of course, toilsome, it was delightful. The mountain side was clothed in the varied beauty of vineyard, forest and grassy slopes, sometimes crossed by little streams. Farther up, the path became more difficult; but even there was the grandeur of the glacier, and the increasing beauty of the prospect.

When near the summit a sudden gale arose, though it would be a real disappointment to give up the attempt, after all their toil so far, especially as their time was limited, the gentlemen thought it the part of discretion to return. The wind was blowing so fiercely that they could scarcely keep their footing. But the guides came to their side, saying, in a cheering resolute way: "Take our hands, and you'll do it!"

With hands firmly grasped in those of the strong, robust, brave mountaineers, the ascent was in a few moments accomplished, and they stood, rejoicing, on the summit.

What a beautiful illustration of our life-path is this mountain way! All day those guides had walked beside the travelers, seeming scarcely to aid them at all, except, perhaps, a moment now and then, in crossing a stream, or climbing over a rocky pass; but ever alert, ever watchful, and at the first real peril, the first great need, holding out the strong, sure hand and almost lifting them over the rugged way, till the mountain-height was won, and before them spread, in matchless beauty, hill and vale, forest and river, green field and silvery lake.

So we walk on, through the green pastures and beside the still waters of our home-life, perhaps with hardly a thought of danger or possible grief; hardly, it may be, recognizing, or even seeking, a Father's guidance and care. Yet His all-loving and all-wise Providence is about us still, by night and day, shielding and guarding us in a thousand ways, warding off unseen dangers, aiding our weakness, though we may be unconscious of aid, guiding us all the way; and at the first great peril or pain, temptation or difficulty—the first moment we turn our faces to Him, and reach out our feeble hands—we feel His strong, sure clasp, and are lifted over the slippery rocks; so onward and upward, sustained by His arm, comforted by His love, cheered by the hope He sets before us, at last our feet touch the shining heights of life eternal!

The days grow warmer and longer; the hyacinths, and jonquils, and narcissus have had their brief season and are gone; but the garden borders are still gay with tulips and daisies, and the blue iris raises its stately head to be admired. Then the rosebuds form, and grow slowly toward perfection—closely watched by the children's eager eyes—and at last open into bloom. Pink and white, yellow and crimson; an almost endless variety of shades and forms, and almost every yard is brightened by their presence. The May skies look down upon it all; May breezes blow in at the open windows and scatter rose-petals upon the floor. Bees are humming amidst the clover.

Let those who can, enjoy the beautiful time of spring. If young in years and blessed with health, do not peer away into the future for anticipated joy, but grasp with thankfulness the daily good showered about your path.

"Why do we heap huge mounds of years
Before us and behind,
And scorn the little days that pass
Like angels on the wind?"

"Each, turning around a small, sweet face,
As beautiful as near,
Because it is so small a face
We will not see it clear.

"And so it turns from us, and goes
Away in sad disdain;
Though we could give our lives for it,
It never comes again."

Make the most of each day, for in all probability no happier period awaits you in the days to come. If you have the shelter and comfort of a pleasant home, with kind parents to watch over your welfare and provide for your wants, cherish them, for you must sometime bear your share of life's burden alone, when these dearly loved friends shall have been laid away to rest. Perhaps you have brothers and sisters, but they will be scattered from the home circle, and you may have none in your trouble and sorrow to comfort and sustain you by their presence.

Go out into the familiar fields and enjoy them; for in after years memory will present them to you, hallowed and beautified through association with the happy fleeting days of the past. Besides there are many useful facts to learn—many interesting things to see at every step taken in God's broad domain. He utilizes every atom of matter, every square inch of ground, each leaf, plant, rock and pool is covered or filled with living wonders. All the myriad forms of life must be provided with a home—nothing is left without the requisite elements necessary for its existence. Even the rail fences provide a place for the gay butterflies to hang their little bags of eggs, where they remain until hatched by the warm sunshine of spring. Here, also, you will find pretty mosses and lichens. The tiny flower seed slyly drops into the crevice of the rock, and the grateful grains of soil waited there by the wind, take the seed and fold it carefully away; the rains and dew give it drink—the generous sun warms it into life. Soon the green leaves appear; then the bud and blossom, which in its turn develops seed to be blown away into other crevices. So industriously does Nature labor to have no spot unprovided with a tenant. The more we study her works, the more wonderful the mysteries she reveals.

Did you ever, in walking in the fields, come across a large, flat stone, which had lain, nobody knows how long, with the grass, forming a little hedge, as it were, close to its edges; and have you not insinuated your stick, or your foot, or your fingers, under its edge, and turned it over, as a housewife turns a cake, when she says to herself, "It's done brown enough by this time."

What an odd revelation, and what an unpleasant surprise to a small community, the very existence of which you had not expected. Blades of grass flattened down and matted together, as if they had been bleached and ironed; hideous crawling creatures—mistle-bugs one wants to call them; some of them cunningly spread out and compressed like *Lepine* watches (nature never loses a crack or crevice, but she always has one of the flat-pattern live time-keepers to slide into it); black, glossy crickets, with their long filaments sticking out like the whips of four-horse stage coaches. But no sooner is the stone turned and the wholesome light of day let upon this blinded community of creeping things, than all rush round wildly, butting everything in their way, and end in a general stampede for underground retreats. Next year you will find the grass tall and green where the stone lay, and the dandelions and buttercups re-growing there. The wild blossoms are ever ready to found a home and rear their pretty heads upon any spot that offers a chance for growth.

"There's not a heath, however rude, but hath some little flower,
To brighten up its solitude, and scent the evening hour."

What a beautiful sight does a field of bright buttercups or star-eyed daisies present to the eye, and how sweetly fragrant a field of clover gently swayed by the breeze; here the bees and butterflies love to linger to gather the honeyed juices hidden in the delicate petals.

There are times when the heart is one melodious song of praise. When we rise in the morning our hymns of gratitude leap forth spontaneously. The sky never seemed as lovely, the bird's carol is longer and sweeter. Flowers lift up their heads for a welcome which we cannot resist giving them—for even in hours of sadness they pierce the gloom, scattering their bright rays into the darkened soul, oftentimes coming as messengers of peace. So in our moments of exulting joy they claim the first place.

Oh, blessed be flowers! How many times have you won your silent way into the homes of the rough and uncouth, teaching them your lessons of humility and love—taming down the harsh, unrefined nature into a more gentle and delicate one. But not here are your best lessons taught. It is the room of the sick, the weary and discouraged that your presence brings most hope and joy. I do not think we can measure the greatness of the lessons taught by these silent teachers of hope, purity and trust, to the weak, discouraged ones of earth. But into how many homes are they sent by kind friends during the long, dreary months of frost and snow? The rich can procure them without trouble, and even humble homes are oftentimes adorned

with them. But there are hundreds to whom they come as rarely as diamonds glitter on the brows of peasants.

Ye who have flowers in abundance, gather from them into little missions of love your bouquets and send to those who have none, that they may fulfil the work which they were placed on earth to do. You who have a few be not selfish with these, but see how many clouds you can scatter from your sick friends' brow—how many homes you can brighten by these little gifts of love. I tell you the lessons taught them will not be the only ones learned. They will not only bring joy to the receiver, but a great delight to the giver.

If flowers were as rare and difficult to collect as rubies and diamonds, they would be accounted as of far greater value, because more beautiful than those gems. Nay, if any one of the precious stones had possessed, in addition to its other qualities, a perfume as delicious as that of the most evanescent of spring flowers, men would have bartered for it the most valued fruits of industry, and poets would have embalmed it in immortal song. It is only because flowers are so plentiful that we forget or fail to perceive that they are so surpassingly beautiful.

Especially are they welcome to the sick. They have been found to have a wonderfully soothing effect on insane persons. The Michigan Lunatic Asylum is provided with a green-house, and persons who have manifested the most violent symptoms of insanity have become calmed down to a quiet condition on being presented with a bouquet from the green-house.

"They speak of hope to the fainting heart,
With a voice of promise they come and part;
They sleep in dust through the wintry hours,
They break forth in glory—bring flowers, bright flowers."

Vegetable Acids—Tartaric.

BY JAS. P. DUFFY.

Tartaric acid is a vegetable acid which is generally obtained from cream of tartar, or more strictly speaking, from the grape, since the latter is the source from which the former originates.

Whilst fermenting, wine, no matter what its variety may be, deposits on the inside of the casks in which it is contained a kind of crust. In the rough state this is called bitartrate of potash. For the purpose of utilizing the crust, which also frequently occurs in bottles of wine which have lain undisturbed for a lengthy period on one side, it is purified, and is then known as cream of tartar.

The tartaric acid is obtained from this in transparent crystals; the cream of tartar being for this purpose treated in the following manner: To two ounces of hot water, to which one-sixth of an ounce of strong hydrochloric acid has been dissolved, three hundred grains of cream of tartar are added. Three hundred grains of calcium hydrate are then dissolved in one and one-third ounces of water, forming milk of lime. This is added to the cream of tartar solution until the latter shows a decided reaction, and the precipitate, calcium tartrate, settles to the bottom of the dish. The calcium tartrate is then collected on a filter made of blotting paper, and transferred to a flask similar to the one already described in these columns in the article on Nitric Acid. A solution of one-third of an ounce of sulphuric acid and one and one-third ounces of water is now added to the contents of the flask and allowed to boil for a short time.

The latter described solution causes calcium sulphate to form from the calcium tartrate, and sets free the tartaric acid in the flask.

After boiling, the contents of the flask are filtered, by which means the calcium sulphate is separated from the acid. The latter, being now in the liquid state, is evaporated over a spirit lamp until it occupies only one-twenty-fourth of a pint. On allowing it cool, crystals of tartaric acid will form and separate from the liquid. In the above description of the process of manufacture, only small quantities of each element are employed on account of the convenience of working the same. The uses of tartaric acid are very numerous and valuable. In chemistry it is frequently used as a test; in medicine it is used with antimony and potash for forming the well-known tartar emetic. Rochelle powders also owe much of their efficacy to the cream of tartar contained in one of the papers.

The acid is used by dyers, who value it very highly, and finally it may be used for making a pleasant summer drink by dissolving half a teaspoonful of it in four ounces of ice-water, adding syrup, and pouring upon the same four ounces of ice-water in which half a teaspoonful of baking soda has been dissolved. The whole will foam up rapidly, forming a very refreshing drink.



TOTTIE'S TROUBLE.

Where clover fields slope upwards
From the meadow by the mill,
To where clustering woods of hazel
Crown the summit of the hill,

There's a lane in whose thick hedgegrowths,
Bright with flowers and glossy green,
Stand many branching elm-trees
To shade the path between.

All along that pleasant pathway,
In the sunny month of May,
Up the lane, between the hedgerows,
Little Tottie walked one day.

Rosy cheeks, and yellow ringlets—
On her face a happy smile—
Passed she, singing, on her journey
From the lane across the stile,

Through a rugged waste of bracken
Trembling in the morning breeze,
Till she stood upon the hill-top,
Underneath the hazel-trees.

There, above her, woodbine, drooping,
Faint luxurious perfume made,
While the pale dog-roses clambered
In a thorn-fenced barricade.

Tottie looked around in wonder:
"Many roses there may be,
But my crimson bud, my beauty,
Best of all, I cannot see.

"Yester eve I saw it growing
Like a ruby, crimson bright.
What has happened to my rose-bud
Through this one short summer's night?"

Tottie did not know—how could she?—
That the crimson bud she saw
Was the same as that pale flower,
Now a pretty bud no more.

For the ruthless wind and sunshine
Opening out the bud to view,
Stole the color from the petals,
Left it pallid where it grew.

Tottie took her empty basket,
And from underneath the trees
Passed again through bracken, waving
In the merry morning breeze.

Down the hill she slowly wandered,
While above her shone the skies,
But the teardrops chased each other
Fast from Tottie's streaming eyes.

What to her was lane or meadow,
Sunny skies or morning hour?
She was going, sad and silent,
Home without her cherished flower.

Children, with hands full of nosegays,
Do not smile at Tottie's sorrow;
Many a rose, with fading petals,
Holds for you a weeping morrow.

Food and Flannel.

Good nourishing diet generates fat, and upon this we depend for the heat of our bodies. Flannel is a non-conductor, and prevents the escape of heat from our bodies, while it also keeps the cold air from reaching us from the outside. If we envelop a jug of hot water in several thicknesses of woollen blankets it will retain heat a long time. On the other hand, if we wrap a piece of ice in a blanket, it may be kept for many hours in hot weather without melting. This only shows that flannel allows neither hot nor cold air to pass through it.

The whole surface of the body should be covered with heavy flannel, as nearly as possible, in cold weather, to prevent the sudden cooling of the body when we go out of a room at 70 degrees into a temperature of zero, or ten below.

People who are subject to colds on the lungs will do well to wear a layer of cotton batting all over the lungs in addition to flannel. See that the layer of cotton comes well up and around the lower part of the neck, and even with the tops of the shoulders, to protect the apices of the lungs.

Whisky-drinkers are not able to resist a low temperature. It is not strange when we find, by actual experiment, that the administration of alcohol lowers the temperature of the body. A temperate, well-nourished man will live, with comparative comfort, in an atmosphere which would freeze the life out of a drunkard in a short time. A wise man will drink hot coffee or milk instead of any form of spirits if he expects to endure exposure to cold.

Where the hands, feet or ears are frozen in a degree not sufficient to cause death and sloughing of the part, they may be restored by applying snow or cold water in a tolerably cold room. This is done frequently by the inhabitants of cold countries, as they say, "to take the frost out." The application of snow or cold water in these cases does not take the frost out, but does directly the opposite thing—it keeps it from coming out too rapidly, and prevents the inflammation which would be set up by the too sudden re-establishment of the circulation.

People who are apparently frozen dead must be put in a cold room, the temperature of which must be raised very slowly indeed. Friction with snow, or cloths dipped in cold water over the whole surface of the body, may be used as mentioned before. Artificial respiration must be tried. Inflate the lungs by blowing into the mouth with a pair of bellows, or with your own mouth, and empty them again by compressing the chest walls. Keep up the restorative efforts for a long time, as cases have been known to recover after being seemingly dead for several hours.

To relieve the itching and burning which usually follows an ordinary case of frost-bite, we know of nothing better than a weak solution of nitrate of silver, say five grains to the ounce of water.

Much from Little.

A bar of iron worth five dollars, when moulded into horse-shoes would double its value. Wrought into needles it would be worth three hundred dollars; into pen-knife blades, over three thousand, and if made into balance springs of watches is worth over three hundred and fifty thousand dollars.

A pound of wool was spun by an English woman, in 1745, into a thread forty-eight miles long. That was thought a great thing in its day, and was recorded on the books of the Royal Society. But since that time a young lady has spun another pound into a line ninety-six miles long, and a pound of cotton with a thread one hundred and fifteen miles in length.

It seems a great deal to make out of these crude materials; but boys and girls you have a material at hand susceptible of a degree of improvement far surpassing that of the bar of iron. Your God-given powers of intellect can be made into "horse-shoes," or "watch springs," and you are the workman. It rests with you what you are to become in life. You may have all possible advantages and yet make life a failure. "Any one can bring a horse to the water, but all the world can't make him drink when you have him there."

IS FARM LIFE UNINTERESTING?

Daniel Webster Among His Cattle.

"Talking with a very bright and ambitious young woman, a farmer's daughter, where we stopped over night, she said farming was a dull sort of life. "Yes," said a young man of twenty-two years, "there is no incentive to work. It is all hum-drum, routine, and hard work—no relaxation of effort and nothing to stimulate."

monest thing to excite our interest if we take the pains for investigation.

Could you tell us how many kinds of grasses—*real grasses*—grow on your farm? Could you tell us of their correct habits and history?—Suppose we ask you how many species of plants are indigenous on your farm, and the name of these plants, time of flowering, color of flowers, soil and locality in which they grow; could you tell us?"

The products of the vegetable kingdom are among the most useful and interesting objects we contem-



DANIEL WEBSTER FEEDING HIS CATTLE FROM HIS OWN HAND.

"What a mistake," we replied. "There is everything for a stimulus. Each farm is a world itself, about which those who have lived upon it know little or nothing comparatively. It is scarcely possible not to be delighted as well as improved by the study of any one department of the creation, or even any single object which it comprises; and this is true both with regard to inanimate objects and to those 'thousand-fold tribes of dwellers' which exist in such profusion and variety every where.—There is something in the 'life and conversation' of the com-

plate. They are associated with the earliest and some of the purest pleasures of mankind; for every one will vividly recollect the delight experienced in his boyhood by the appearance of the harbingers of the vernal season—the flowers of the snow-drop, crocus, primrose, and violet, peeping up above the green-sward, or from the hedgerows, proclaiming in an obvious and impressive manner, "Lo, the winter is past, the rain is over and gone, the flowers appear upon the earth, the time of the singing of birds is come." The cultivated flora of the garden, and the wild flora of the field,

are among our first instructors, conveying, by their external configuration, lessons of purity and of grace to the mind in the age of its awakening susceptibilities.—This is a moral and intellectual discipline, silent and unostentatious in its process, but of great importance in its effect as a source of valuable directive influence to the thoughts and feelings. But to man, in mature life, the larger plants and timber-trees are essential. His existence and civilization depend upon them. They furnish, with unbounded prodigality, the food which satiates his hunger and gratifies his taste; supply many of the medicines that allay his sickness; afford him materials for a habitation; yield the means of transporting himself and his property over the land, and across the ocean; besides being the ornament of his walks during the period of their growth.

What then could be found more interesting than to investigate the structure of plants; to unfold the riches of the vegetable kingdom with its different organizations, and the means by which their development and fructification are secured.

Consider also the animal creation. Animals supply us with food; minister to our pleasures; transport us from place to place. The more closely we observe, the more widely do we recognize the diffusion of animal life; the more diligently we search, even in the pools, and fields, and woods, the more novelties in animal life do we discover; and the more interested do we become in their habits. Perhaps no animal is more useful to man than the ox. Its flesh is the beef of our dinner-table, and that of the calf is our veal. The milk of the cow we drink all through life. Glue is made of the horns, hoofs, and hide parings of the ox. Cow's hair is mixed with mortar, to make it hold better, and in fact every bit of them, from the tip of their tail to their nose-end, is useful in some way or other. Read these old lines which, I believe, are quite correct in describing a good milch cow:—

"If long in the head, and bright in the eye;
Short in the leg, and thin in the thigh;
Broad in the hips, and full in the chine;
Light in the shoulder, and neck rather fine;
Round in the carcass, and wide in the pin;
Fine in the bone, and silky of skin;
Deep in the bosom, and small in her tail,
She'll ne'er be deficient in filling the pail."

The noble horse, the sheep, swine, and even the fowls of the barn-yard, are all worthy of our attention. Then go out into the fields. Do you know the habits of the woodchuck that burrows in the earth and sleeps on a nest of dried leaves in a torpid state during the cold winter? Do you notice the lively, playful, and busy squirrel, running along the fences and walls, cheeping like a young chicken, its cheek pouches distended with nuts or seeds, occasionally stopping and standing upright, watching against enemies, and disappearing in some hole at the least alarm? Do you notice the graceful movements of the bird, its soft and elegant plumage, its gift of song, or, if not of song of a certain lively gaiety, its tender care of its young, its skill in preparing so pretty a home for their reception, its plaintive mourning when deprived of its mate, its faith, as in search of a more genial clime, it flies across the mighty waters—all endear it to us as a beautiful gift, for among all the many wonderful creatures God has made, there is not one to be more admired than the bird.

The sprightly and familiar blue-bird is always a welcome visitor, and one of our earliest songsters. He does good service to the farmer in destroying beetles, grass-hoppers, grubs, wire worms and other familiar pests; it rarely injures any of our garden fruits, preferring those of the sumach and the wild cherry. The nest is made either in a box prepared for it, or in any convenient hole in a tree. Last year a pair of these beautiful birds built their nest in a gate post which had a hole in the side, and they were continually darting in and out. Early in the season I beheld the busy creatures carrying in material for a nest. When I thought sufficient time had elapsed for the eggs to be laid I embraced the opportunity, when the birds were not in sight to in-

sert my hand, and I found there were six lovely eggs, of a pale blue color in the nest. This gate occupied a carriage way and was in constant use, but the birds came and went without apparent fear. The blue bird's song is soft and agreeable, becoming plaintive as winter approaches, at which time most of them repair to the Southern States.

Who does not love the robin. His appearance and his attitude are known to every one. He stands, his head a little raised, his wings drooping, his mild, pleasant eye beaming with intelligence. Sometimes he spies a worm wriggling in the grass, and he gives a hop toward it, and pecks at it, and devours it. Then he resumes his former position. Now and then he sings his few sweet notes from a wall or decaying stump. His flight is rapid, and consists of short, quick starts, from one place to another. Now he is on the ground, now on the fence. The nest is often built near houses, and in very noisy locations; a robin has been known to build on the timbers of a railroad bridge over a wide sheet of water, on which trains passed at least every hour during the day and night—not only a dangerous and a tremulous position, but one from which it must be difficult to teach the young to fly, as a mis-step would precipitate them into the water.

Attempts have been made, with some partial success, to classify the various architectural contrivances connected with the nesting and incubation of birds.

"Behold a bird's nest!
Mark it well, within, without!
No tool had he that wrought; no knife to cut,
No nail to fix, no bodkin to insert.
No glue to join; his little beak was all;
And yet how neatly finished! What nice hand,
With every implement and means of art,
Could compass such another?"

The most recent and most nearly successful attempt to systematize the subject, is that of Prof. James Rennie, of King's College, London. In this system the entire class of birds are ranged in twelve groups; miners, ground-builders, masons, carpenters, platform-builders, basket-makers, weavers, tailors, felt-makers, cementers, dome-builders, and parasites. In the Spring the birds of these various trades are building their nests and

"Every copse
Deep tangled, tree irregular, and bush
Bending with dewy moisture o'er the heads
Of the coy choristers that lodge within
Are prodigal of harmony.

Cheering is the invitation:—

"Anna—Marie, love, up is the sun;
Anna—Marie, love, morn is begun,
Mists are dispersing, love, birds singing free;
Up in the morning, love, Anna—Marie."

Cultivate a fine taste for the beautiful works of nature and you will find that farm life does not lack stimulus, nor the fields nor forests their charm.

"Ye birds that fly through the fields or air,
What lessons of wisdom and truth ye bear!
Ye would teach our souls from earth to rise;
Ye would bid us all grovelling scenes despise;
Ye would tell us that all its pursuits are vain.
That pleasure is toil—ambition is pain—
That its bliss is touch'd with a poisoning leaven,
Ye would teach us to fix our aim on heaven.

"Beautiful birds of lightsome wing,
Bright creatures that come with the voice of Spring;
We see you arrayed in the hues of the morn,
Yet ye dream not of pride, and ye wist not of scorn!
Though rainbow splendor around you glows,
Ye vaunt not the beauty which nature bestows;
Oh! what a lesson for glory are ye,
How ye preach the grace of humility.

"Sweet birds, that breathe the spirit of song,
And surround heaven's gate in melodious throng,
Who rise with the earliest beams of day,
Your morning tribute of thanks to pay,
You remind us that we should likewise raise
The voice of devotion and song of praise;
There's something about you that points on high,
Ye beautiful tenants of earth and sky."

In Summer the whole air is filled with flies and insects, myriads of them too small for our eyes to see. The swallow is the bird, that from morning to night, in broad sweeps through the air, is occupied in catching them.

With the early Spring, the great temple of nature opens, so to say, her gates and doors, and forth rush living creatures, by millions. Countless eggs are hatched, thousands and tens of thousands of tiny grubs and caterpillars spring into life, and in their turn become perfect insects. The chrysalis, that has lain all Winter swathed up in some secret spot, now has its bands unloosed, and flutters out on wings. By the brook, in the meadows, and among the trees, there is a hum and a stir of life everywhere.

Well has it been said by Dr. Chalmers, as he viewed the telescope in connection with the microscope: "The one led me to see a system in every star; the other leads me to see a world in every atom. The one taught me that this mighty globe, with the whole burden of its people and of its countries, is but a grain of sand on the high field of immensity; the other teaches me that every grain of sand may harbor within it the tribes and the families of a busy population. The one told me of the insignificance of the world I tread upon; the other redeems it of all its insignificance; for it tells me that in the leaves of every forest, and in the flowers of every garden, and in the waters of every rivulet, there are worlds teeming with life, and numberless as are the glories of the firmament. The one has suggested to me that beyond and above all that is visible to man there may be fields of creation which sweep immeasurably along, and carry the impress of the Almighty's hand to the remotest scenes of the universe; the other suggests to me that, without and beyond all that minuteness which the aided eye of man has been able to explore, there may be a region of invisibles; and that, could we draw aside the mysterious curtain which shrouds it from our senses, we might there see a theatre of as many wonders as astronomy has unfolded—a universe within the compass of a point, so small as to elude all the powers of the microscope, but where the wonder-working God finds room for the exercise of all his attributes; where he can raise another mechanism of worlds, and fill and animate them all with the evidence of his glory."

Daniel Webster was a farmer, and took delight in country things. He had a patriarch's love of sheep. Choice breeds thereof he had. He took delight in cows. He tilled paternal acres with his own oxen. He loved to give the kine fodder.—It was pleasant to hear him talk about oxen, and but three days before he left the earth, too ill to visit them, his oxen loving came to see him as he stood in his door, and his great cattle were driven up, that he might smell their healthy breath, and look his last on their broad generous faces that were never false to him.

What an affecting scene is here described. Daniel Webster loved these animals for their own sake, and not for their value in silver and gold. He loved to feed them with his own hands in order to witness their happiness while satisfying their hunger, and to win their love for him. They loved their kind owner, and no wonder they came loving one by one to see their sick lord. The Scripture says "The ox knoweth its owner." Then all those splendid animals, numbering between one and two hundred, knew Daniel Webster, as they were driven up, and looked upon him for the last time, and who shall say they did not miss him and mourn for him when he came to them no more.

No doubt this great man enjoyed more real happiness in the society of the dumb animals of every kind on the Marshfield farm than he ever realized in hearing the plaudits of his fellow men, as his elegant words rang out in the Senate Chamber Hall of our great nation, and thousands of worshippers were following in his train. He knew that fame was but a bubble, and he learned by bitter experience that the most devoted of his followers might desert and betray, but not one of these guiltless creatures would ever prove false to him.

Why is there so much muttering and dissatisfaction with existing conditions. Life everywhere is a state of daily warfare; each position has its trouble, discontent, and burden, and man in one situation is, on an average, as happy as in another. Life is too short to waste in useless repining. Let us, then, try to content ourselves in the position assigned us. Let the farmer look out over his broad acres and know that he possesses an independence which is vouchsafed to few other avocations, and while many of his fellows toil on day after day in close confinement, subject to the rule, perhaps, of uncongenial regulations and masters, he is monarch, at least over his small world. Let him appreciate the blessings daily showered upon him, and sit "beneath his own vine and fig-tree," saying with the poet:

"Beneath these fruit-tree boughs, that shed
Their snow-white blossoms on my head,
With brightest sunshine round me spread
Of Spring's unclouded weather:
In this sequestered nook how sweet
To sit upon my orchard seat
And birds and flowers once more to greet,
My last year's friends together."

A Hundred Years Ago.

BY CAPTAIN CARNES.

A little more than a hundred years ago England, or Great Britain, sought to place her heel upon the colonies of America. She had crowded her prohibitory laws upon them; she had forbidden this industry and that manufacture; she had crowded her way into the affairs of private citizens; she had said that they should not have this thing, and they should not do that thing—her zeal was not according to knowledge. Endurance ceased to be a virtue with the colonists.

Little more than a hundred years ago they illustrated

the old proverb. The last straw was placed upon the camel's back and it broke. The "stamp act" massed the long gathering clouds of war, and the storm broke with appalling force. Little more than a hundred years ago a brilliant orator on the side of the British Ministry, exclaimed: "These Americans, our own children, planted by our care, nourished by our indulgence, protected by our arms until they are grown to a good degree of strength and opulence, will they now turn their backs upon us and grudge to contribute their mite to relieve us from our overwhelming debt."

Colonel Barre, with the vehement tones becoming a soldier, arose for instant reply: "Your oppression planted them in America! They fled from your tyranny into a wild, uncultivated land, where they not only had to subdue the soil, lying under the original curse of brambles and thorns, but they had also to struggle with and subdue the wily, treacherous and murderous native aborigines—the most terrible of all foes to mankind—and yet they preferred this state of existence to that which they had endured from the hands of those who should have been their friends.

"Nourished by your indulgence? They grew by your neglect! What was your care? So soon as they began to grow your deputy leeches sucked their blood. When they could stand alone you sought to cripple their strength by misrepresentation. When they could walk unaided you would manacle them with unjustifiable taxations.

"Protected by your arms? They took up arms to protect the frontier of their country, which was drenched in blood, to defend the interior, whose products were to yield a revenue to the enlargement of your own funds; and the same spirit that actuated this people to deal fairly with you will also give them strength to deal fairly by themselves. Remember and believe what I this day tell you."

But in spite of all this heroic eloquence, a little more than a hundred years ago the odious "stamp act" was passed. The news fell like a thunderbolt upon the colonies. Boston and Philadelphia muffled their bells and rang a funeral peal. In New York a death's head was carried through the streets with the mournful motto, "England's folly and America's ruin." In Portsmouth a coffin inscribed with the word "Liberty" was ceremoniously borne to the grave, while minute guns ominously pealed along the route.

A little more than a hundred years ago, Dr. Franklin, then in London, wrote to a friend in the colonies: "The sun of Liberty is set, and America must now light only the lamps of economy and industry." Back went the portentous, surcharged reply: "We shall light torches of another sort." The answer was prophetic, as was proved by the long, fierce, persistent and, thank God, triumphant struggle for liberty—for the freedom of America, that country which is the asylum for the down-trodden and oppressed of every nation.

Boys and girls of to-day, the men and women of tomorrow, look back a little more than a hundred years ago. Think of our heroic ancestors, hewing their way step by step along a savage wilderness, oppressed by foreign foes, and assailed by murderous savages and ferocious wild beasts; suffering cold, hunger and disease, torn from kindred ties—for what purpose? To build up homes of peace and plenty for you and me; to open up a highway of light, liberty and equal rights for us to-day. A fruitful country, a land literally "flowing with milk and honey," and where "rivers of oil" abound; with free institutions of learning for all, a right to worship God after the dictates of our own consciences, a broad platform where merit is king; where, ere long, the well-balanced head will hold its own weight, irrespective of the sex of the shoulders that shall bring it unchallenged into whatever station it is fitted to fill. All this, all this they purchased for you and me—purchased with a fortitude and suffering which we to-day do not appreciate half enough; bought all this for us with their strength, their best abilities, and, also, too often with their heart's red blood.

Oh, little people of America, and "Children of a larger growth," do you realize the responsibility and blessing of living now? when Science, unfettered, unchained, is taking the human mind down and out and up through the vast, inexhaustible storehouse of Nature, until awe-struck and adoring we can only exclaim, "How wonderful are Thy works, oh Lord God of Hosts!"

Snakes of Tennessee.

BY B. G. BRAZELTON.

The snakes inhabiting this State are the rattle-snake, blow-snake, copper-head, and moccasin, of the poison class, and the green-snake, garter-snake, house-snake, chicken-snake, and black-snake, belonging to the harmless class.

The one most dreaded, on account of its bite, is the well-known rattle-snake, which grows to be six feet long, and is of a yellowish-brown color, with yellow spots along its sides, and has a diamond-shaped head, and also provided with a rattle in the tail, consisting of articulated horny cells, vibrated by motion to make a noise. These horny cells, or rattles, as they are generally called, increase in number as the snake advances in years, one rattle growing each year; so by knowing the number of rattles on a snake's tail, you are able to tell the age of the snake. The greatest number of rattles that I ever knew found on one of these snakes were sixteen, which would make the snake sixteen years old. Whether this is their greatest age or not I am unable to tell. When imposed upon it makes its rattle sing, warning the intruder that danger is nigh; and when swimming, it keeps its rattle entirely above the water.

It usually inhabits hilly and mountainous districts, where the soil is rocky and barren, and is seldom found on low wet land. It never leaves its young very far, so that in case of an attack, they may be quickly called up and swallowed out of danger, should a retreat be necessary. When this State was first settled these snakes were plentiful, but at the present their number is small. Many years ago, a company of men were surveying the line between Hardin and Wayne counties; they met with a large rattle-snake, which made a queer noise by means of its tail, different from that made with its rattle when attacked; soon a large number of young snakes came running up, when the old one opened her mouth and received them out of danger, after which she departed, leaving the surveyors to wonder at the love of a mother-snake for her children.

This snake swallows its food whole, but thought not to live in a torpid state during digestion. I once heard of a rattle-snake being found with a tortoise in it; how long it had been in the snake was unknown; the observer found that its weight, and the snake's traveling, had caused a hole to be worn through the snake's body.

There is a species of rattle-snake called the ground-rattle-snake, which is a small, short, and thick reptile, about one foot long, and resembles the large rattle-snake in appearance. Why it received this name I am not able to tell, but probably from its often being found under logs and in the ground. Its bite is said to be very poisonous.

The blow-snake, another poisonous reptile, is a short, thick snake of a dark color, which inflates the body before striking, making, at the same time, a noise resembling that of a goose when attacked on her nest. It is sometimes called the spread-in-outer, because when struck, it spreads its body, making it look very flat. Its habitation is in high dry lands, in gardens and weedy places.

The cotton-mouth may be classed with those that inhabit the water, measuring when fully grown, from four to five feet in length, and is of a bright black color, having a very poisonous bite, considered equally as dangerous as the rattle-snake. When attacked, it jumps at its enemy, though he be thirty feet distant, at the same time throwing its mouth wide open, which looks inside white as cotton; hence the name. It lives in or near some water course, and among drifts of logs, where it can crawl out on some chunk of timber and enjoy the rays of the sun, at the same time watch for its prey.

Next in order of the poison race, and of those inhabiting the water, is the copper-head, which is about five feet in length, and of a dark ugly color on the back and sides; its under jaw and belly is of a copper color, whence the name copper-head, or copper-belly, as it is often called. It, like the cotton-mouth, lives near the water, never making its appearance on the hills except in the dry season, when the creeks and other watering places becoming dry it leaves for the high land, perhaps in search of food, where it may be found under or near some dwelling-house, in the poultry yard, and often in the coops. Its bite is very poisonous. The best and quickest remedy that I know of to be administered in

case of a bite from this, or any other poisonous snake, is tobacco; chew it and swallow the juice, at the same time apply a piece to the wound. I hope, mentioning the above remedy may not cause some young lad to carry a piece of tobacco in his pocket for fear he might get snake bit, and no remedy near, and by that means learn to chew the weed.

The following is said to be an excellent remedy for snake bites, or for the sting of the wasp, hornet, or bee: "Take equal quantities of gunpowder, salt, and yellow of an egg; mix so as to make a plaster; place on a cloth, and apply to the wound, letting it extend one inch on all sides of the wound. When the plaster gets full of poison, it will drop off; apply a new one until it remains sticking to the wound."

The moccasin is another poisonous reptile, of which there are three species, the bob-tail, spotted, and black moccasin; all have a poisonous bite, and live in or near some water course. The bob-tail grows to be very large in size, but short in length; scarcely ever found over four feet long. Its color is of a dark chestnut brown, faintly barred with black, and it has a short tail, whence the name. The others are small, slim snakes, growing not over four feet in length; one has black and brown spots on its body, the other is of a black color.

This concludes the history of the poison class, now for the harmless snakes that infest this region.

A very beautiful, harmless little snake living in this State is the green-snake, which is small, slim, and about two feet long. Another one is the garter-snake, a small, slim, striped reptile, of which there are two species, both harmless. But the most beautiful of them all is the ringed, or house-snake, which is about fifteen inches long, and its body encircled with red and white rings, which makes it look very graceful. Its habitation is principally in the cracks or between the ceilings of houses, where it can catch rats and mice, of which it is very fond, and may be heard chasing them at different hours of the night, while humanity is taking sweet repose.

There is another long-bodied, black-colored snake, with pale yellow spots on its side, and has a white belly, called the chicken-snake, which is sometimes found seven feet long. It feeds on eggs, young chickens and birds, and may be seen climbing large trees in search of bird's nests. It is also fond of small animals, such as rabbits, rats, and mice, and it has been known to catch, kill, and swallow a rabbit whole.

I will conclude my history with the long black-snake, one of the most conspicuous of the race, which is of a jet-black color, and often found seven feet long. It is a good fighter among other snakes; been known to whip and kill a large rattle-snake. If you strike it and run, it very often will follow you a great distance, or until you turn and run towards it, then it will run from you. From its being such a fast traveler, and love for running, it is called by many, the black-racer.

Snakes are associated in our minds with evil and with cunning. Their stealthily silent approach and sudden poisonous dart are proverbial. We find them mentioned in Scripture, in the history of all ages, and ever in terms of opprobrium. Serpents are often mentioned in poetry, typical of slander, cunning, deceit, and other crafty devices.

"The tongues of serpents with three-forked stings,
That spat out poison, and gore, and bloody gore,
At all who came within his ravening."

Wonderful Cats.

It is on record that a shoemaker in Edinburgh chanced to leave the door of a lark's cage open, of which the bird took advantage to fly away. About an hour afterwards, a cat belonging to the same person made its appearance with the lark in its mouth, which it held by the wings over the back in such a manner that the bird had not received the least injury. After dropping the bird on the floor she looked up to her master as if expecting his recognition of her cleverness. The writer himself observed many instances of a remarkable instinct in cats, and at the present time has one which every day knocks at the door—sometimes modestly, sometimes with a sharp double-knock like a postman, occasionally with a sharp series of raps, pianissimo, like a lady or a quiet single gentleman. The door is half glass and the knocker low. The cat was not taught, but acquired the trick by his own observation.

Thrift More Important Than Large Salary.

In a miserable tenement in New York city, a man named Munroe S. Minster lately shot himself, wife and child. There were but two or three old rickety chairs, a small table and a bureau in one room, eight by ten feet, and in a closet adjoining, which served as a sleeping room, was a poor apology for a bed. The apartments were destitute of comfort and in a shockingly filthy condition. This man was steadily employed at \$12 per week—not a large salary to be sure; but quite sufficient to provide his small household with the necessities of life and a comfortable home—yet, judging by his surroundings, he had found his efforts unavailing, and evidently tired of life's struggle, put an end to his own existence and that of his family.

A sad, sad story truly—but where lay the fault? Was it want of means, or miscalculation—want of luck, or lack of thrift? These are serious questions, as they sustain a wide application. The occasion of all this distress and poverty must, we regret to say, have rested with the parties themselves—knowing families as we do, who possess inviting homes on less money; but calculation is made, every cent is expended to the best advantage: consequently the children are warmly clothed and sent to school, while a tidy, cosy home awaits their return, both parents and children possessing the comforts of life; besides laying by, at the same time, a little surplus fund for the time of need. One instance in particular presents itself to mind:—An Englishman and his wife came to this country several years since, with nothing in their hands but a willingness to work, and minds trained by necessity to habits of economy. Mr. W—, obtained employment in Connecticut in a machine shop, at \$1.50 per day, and they were thankful. Being faithful, his wages were increased to \$2, and he retained his situation for many years at these wages. In due time two children were born to them—one a daughter, who was from the age of four years afflicted with deformity and spinal complaint, requiring much care and considerable extra outlay for medicine, etc., Notwithstanding, they lived in a comfortable home; dressed respectably; attended church every Sabbath and sat in their own pew. Their home consisted of four rooms, marvellously clean, and containing all needful furniture. Not long since, being informed that they contemplated building a house, to cost \$1,000, I took occasion to inquire how they had managed, and was told by thrifty Mrs. W—, that they had had this object in view from the start, determining to place in the savings bank each week a small sum of money. They had rarely failed to do so. Oat meal and Indian porridge, good bread, butter, soups, stews, and usually one small roast a week served as food. They ran no credit accounts, but paid as they bought. Good care was taken of clothing, each having a Sunday outfit. "Why," said the mother of the household as she brought forth a black silk dress, "I have three dresses still that came from England. This black silk has been turned twice and made over several times. Originally the skirt was very full, and all the breadths straight. I wore it for years just as it was, for a best dress; then I turned it. The next time I took out enough for a new waist, and a year ago I made it over, goring the skirt, taking out enough for a basque and this pleated ruffle around the bottom. When I come home from church I change it for a calico wrapper; and it will last some time longer, although it is now getting somewhat worn. This plaid woolen frock also came with us, which I have never altered." It looked rather old-fashioned to be sure, with a deep pointed waist and mutton-leg sleeves; but I have seen the owner wear it with a white linen collar and cuffs when nothing could be more comely. I regret to say that the house was not erected, owing to the death of Mr. W—, but he had the satisfaction of knowing that his family were not left dependent upon a cold world for bread.

The trouble is, many people are dissatisfied with a little, and, craving for more, neglect to husband and make the most of what is already in hand. Now the richest men, with all their wealth, only get their food, the clothes they wear, and a house to live in, which may be finer than those of the poor man; but happiness and contentment cannot be added by wealth; in fact these welcome guests more frequently take up their abode in the less pretentious home of the working man.

Further, with increase of means come wants in equal proportion; a thousand avenues open through which the rich man's money flows. His own family expenses, for instance, keep pace with his advancement. Children acquire luxurious habits

of living, which are generally gratified; although it were better for all were they reared with simple tastes. Then, less fortunate relatives are to be assisted; various institutions and the poor crave his helping hand. There are also heavy taxes to pay, notes to meet, and bills innumerable to pay; and contrivance is called in to make both ends meet in the house of the man of wealth as well as in the more humble home.

Judgment must be exercised in the expenditure of an income in either condition. A case in point: Spending a short time in Hartford, Connecticut, several years ago, chance introduced me to a family consisting of man, wife and two children, with whom I became somewhat familiar. Mr. C—, as I will call the head of the household, was in the employ of an insurance company at a salary of \$1,500 per year and found; while for wife and children \$20 per week was paid for board, leaving \$460 for wearing apparel and other expenses. Mrs. C—, received \$50 one morning with which to purchase winter clothing for the children, and other necessities. Going on a shopping expedition she bought, not the warm clothing, but \$50 worth of real lace, for which she had a fancy. Thus most of their limited salary was spent without due consideration. This family were unable to furnish a home for themselves, just managing to live, constantly in debt, and always complaining about straitened circumstances.

But where lay the fault? Shortsighted, blind to their own thoughtlessness, they struggled on from year to year, often wondering how this one or that one managed to live so nicely and at the same time keep a bank account; while they were constantly distressed because of bills unpaid, and wants unsupplied. That \$50 worth of nice real Valenciennes lace told why they made no headway: had no family altar where their children could be taught domestic tastes and habits, with no injurious surrounding influences in the home, at least, to lead astray. Believe me, the boarding house has not a healthy atmosphere for either parents or children. Better a few unpretending rooms sustained by economy and cheerful management; gradually adding conveniences, increasing the comfort of the same, than to share the most elaborately embellished mansion of another.

That a family of three persons should live in squalid misery on an income of \$12 a week is sad to contemplate. An air of comfort might have pervaded every corner of those two rooms. Cleanliness would have done much; a tidy cloth on the little table; a sweet scented geranium in the window; a shining tea kettle on the polished stove; and the mother and child neatly clad in calico, would have changed that wretched place into a sunny, attractive home, the influence of which would have been incalculable upon the three lives blotted out of existence so cruelly and unnaturally. Let us then make an effort to do the very best we can under existing circumstances, and rest assured our efforts will be rewarded in many ways.

Dueling.

When the question about the suitable device for our national arms came up before "the old Congress," a Southern member vehemently opposed the eagle, as that was the king of birds, and we were down on kings just then.

Judge Thatcher of Massachusetts, arose and proposed the "goose" as a very suitable device. It was a humble, republican bird, and would be handy, as they could put the goslings on cent pieces, etc. There was a good deal of laughter at the Southerner's expense, and in hot blood, he sent a challenge to the Massachusetts representative. Judge Thatcher took it coolly, and handed it back to the friend who brought it, saying he should not accept it.

"What! will you be branded as a coward?" he asked.

"Yes, if he pleases," he said good humoredly. "I always was a coward and he knew it, or he never would have sent the challenge."

There was a good deal of mirth in Congressional circles at this reply, and the two gentlemen were soon on as friendly footing as before.

Friedrich the Great was no friend to dueling. He prized his tall soldiers too much to lose one of them unnecessarily. An officer once asked his permission to fight a duel with a man who had insulted him. Leave was granted on condition that the Emperor should be a spectator. The time came and the parties met at the place fixed by his Majesty. What was their surprise to find a tall jibbet looming up above the ground.

They anxiously inquired its purpose. "I intend to hang the survivor," said the stern old monarch.

That duel was not fought, and by this effectual device, dueling was broken up in the army.



IN PEACE.

BY J. HUIE.

The shades of night, descending slow,
O'er top the silent hills;
The silent heavens are bending low,
With silent stars that burn and glow;
And peace the valley fills.

Soft-going sounds the senses steep,
Earth has its time of rest,
For toil and care together sleep;
And those who laugh and those who weep,
Wrapped in God's care, are blest.

Star-woven curtains God draws round
His children as they dream;
Light angels tread the holy ground,
Bright messengers of love surround,
And watch and ward for Him.

With trustful heart I would lay by
Life's good or seeming ill,
In blest forgetfulness to lie
Beneath a wakeful Father's eye—
For all things wait His will.

For earth and heaven are joined—and I
Am His who knows them all;
Safe when His sun is hot and high,
Safe when His night winds wander by,
Whatever may befall.

had received eight banderillos in his neck and shoulders, when, upon a given signal, the picadores and matadores suddenly withdrew, leaving the infuriated beast alone in his wild paroxysm of wrath. Presently a soft, musical note, like the piping of a lark, was heard, and directly afterward a girl, not more than fifteen years of age, with the tasteful garb of an Andalusian peasant, and with a pretty face, sprang lightly into the arena, approaching the bull fearlessly, at the same time calling his name, "Moro! Moro! Ya voy!" At the first sound of the sweet voice the animal ceased his fury and turned toward the place whence it came, and when he saw the girl he plainly manifested pleasure. She came to his head and put forth her hand, which he licked with his tongue. Then she sang a low, sweet song, at the same time caressing the animal by patting him on the forehead, and, while she sang, the suffering monarch kneeled at her feet. Then she stooped and gently removed the cruel banderillos, after which, with her arms around "El Moro's" neck, she led him toward the gate of the torril.

"Big Ben."

Some of the dimensions of this clock in Westminster Abbey, London, England, may prove interesting to our young friends. The face measures 22 feet 6 inches in diameter, and 71 feet in circumference; the minute hand is a little over 11 feet in length, and, being hollow, and made of copper, only weighs $1\frac{1}{4}$ cwt.; the figures are 2 feet from end to end, and the minute dots are exactly 1 foot 1 inch apart from centre to centre. It takes five hours twice every week to wind up the striking train, but twenty minutes only for the going part, which is small compared with the striking part. The number of turns taken in winding up the clock every week are: Quarter weights, 7,400; hour weights, 7,000; going weights, 420—total number of turns per week, 14,820. It reports its own time to Greenwich twice in each day, and is kept so correct that it has varied less than a second in eighty consecutive days. The weight of the pendulum is 700 pounds, and the shaft is 15 feet long. The weight of the striking machinery is nearly 3 tons. To reach the clock the visitor has to mount nearly 800 steps, but is well repaid for his trouble by seeing some very interesting views of London and its suburbs. The smallest of the quarter bells weighs 21 cwt., the second quarter bell 26 cwt., the third quarter bell 36 cwt., and the fourth quarter bell nearly 4 tons. The hour bell, "Big Ben," weighs 13 $\frac{1}{2}$ tons. The weights fall a distance of 175 feet beneath the clock.

The Power of Noble Associates.

There was once a dull, heavy English lad, who had the misfortune early to lose his father, whose guiding and restraining hand he seemed especially to need. His strong point seemed to be his strong will, which made him anything but a pleasant companion. But a wise mother felt that even this quality might be made a manly power for good if only properly restrained and directed. So she made obedience a law of his childhood, but taught him to decide and act for himself in matters where he could be safely trusted to judge.

At fifteen he was a lumbering, awkward growing lad, more fond of rough field sports than of books. But now a most happy change came over him. Providence threw him into the society of the Turney family, a most accomplished and intellectual circle, but one with very wide views of philanthropy. He saw the grand "raw material" in the lad's composition, and encouraged and stimulated him to make the most of his abilities. Through their aid he entered the University of Dublin and won high honors, the great ambition being to carry home his laurels to his noble friends. He married a daughter of the house, and became at the age of thirty-two a member of Parliament. Sir Fowell Buxton's name will long be remembered by those who fought the battle of Emancipation in the British colonies. "Elephant Buxton," as he used to be called, threw the whole force of his strong character into the battle, and never flagged or faltered until there was not a slave on British soil. His success in life turned on his forming in early years the right stamp of associates. They were those who would lift him up and stimulate him to the highest exertion of which his nature was capable. Any young man who would rise in the world, must follow his example in this regard, and shun every downward tendency.

The Power of Kindness at a Bull-Fight.

Notice had been posted on all the public places that on a certain day the bull called "El Moro" would be introduced into the arena, and that, when he should have been goaded to the uttermost fury, a young girl would appear and reduce the animal to quiet subjection. The people of Cadiz had heard of "El Moro" as the most magnificent bull ever brought into the city, and it soon became known that the girl thus advertised was a peasant girl of Espara, who had petted the bull, and fed it and cared for it during the years of its growth. On the appointed day the vast amphitheatre was filled with an anxious, eager crowd. Three bulls had been killed and dragged away, and then the flourish of trumpets announced the coming of the hero of the day. With a deep, terrific roar, "El Moro" entered upon the scene. He was truly magnificent, a bovine monarch, black and glossy, with eyes of fire, dilating nostrils, and wicked-looking horns. The picadores attacked him warmly, and hurled their banderillos (small, dart-like javelins, ornamented with ribbons, and intended to goad and infuriate.) The bull had killed three horses off-hand, and

Narrow-Minded.

In the ordinary course of human life, without great reverses of fortune, impressions are likely to be governed by one sphere, and consequently being viewed from one stand-point only, are one-sided. If we were to view a cataract at a distance, and make no allowance for the position in viewing it, its diminished size, besides the lack of the sound of falling waters, we would have no more idea of its charms than though we had never seen it. Thus it is when position is allowed to prejudice the mind. How natural it seems for every one to take most interest in the sphere in which he lives. Every family is like a separate planet, with its satellites revolving around it; outside affairs are sometimes viewed by these small worlds as of small importance if they do not relate in any way to their own interests.

No one is surprised if an ordinary laborer cares little with what new work of art Vinnie Ream has delighted the refined world; or if Rosa Bonheur is an artist or a writer of fiction; if Walter Scott wrote *The Lady of the Lake* or Robinson Crusoe; a family depends on the poor man's labor, and his aspirations after refinement, if ever possessed, have been crushed by the wants of poverty, and he has settled down into the narrow groove of his existence. The business man has little time to attend to charities—those when the left hand knows not what the right hand doeth. A higher position is sought, and how to increase his wealth is the greatest interest and aim of his existence, and of more reality to him than the widows' and orphans' cry, which never reaches his sympathy.

Prejudice is by far the greatest cause of persons being narrow minded, for it bars the door of the mind, admitting no liberal ideas. Instances of this are so numerous that we need not remind our readers of them. Compare our own religious liberties, and the freedom of thought in our own age and country, to the "reign of terror." Some allow preconceived notions to become so firm that they are unwilling to investigate a subject fairly, fearing the truth might be at variance with their own pet theories. Opinions differ as greatly on any one subject as the variety of different minds and experiences of the persons who discuss them. We have an illustration of this in the reading of the Bible; how many religious sects there are who take it for their guide, who differ in some minor points; yet who shall presume to sit in judgment and say all are wrong who do not adopt his "articles of faith?"

In order to be liberal-minded it is not necessary to swerve from our principles of right, nor accept every theory advocated; but, believing that there is more than one route to a great city, be willing to take the pleasaest, the most profitable and surest road there, even though we have been in the habit of going another way. It is very refreshing to converse with or read the writings of one whose ideas come to us like the sunshine after the summer rain, leading our thoughts into a new channel; we gain intellectual activity, which brings permanent good. Let us look life in the face, not seeing men as trees walking, but with that love and charity which sees goodness in all mankind, and recognizes truth in disguise; then only can we expect to be truly noble in mind and life.

Small Economies.

Generally speaking, whenever large savings have been made, they have been effected in little sums. Very few persons of ordinary honesty deliberately set to work to make large purchases which they cannot afford, and yet numbers spend just as much in the long run in little things that they scarcely think worthy of notice. It is very difficult to realize fully the value of small sums. If the nickels and pennies that lie loose in the pocket were properly appreciated, there would not be so much pecuniary embarrassment in the world as there is. "Many a mickle makes a muckle," this is true of nothing more than of pennies and five cent pieces.

What is spent for the household is generally a necessary outlay, and yet there are two or three ways in which money can be saved here that I should like to mention.

The first is by buying in large quantities. Of course the danger is that when there is a stock of things to "run at," as servants say, they will be more extravagantly used. All I can say on this point is that they must not be "run at." A proper quantity must be portioned out and the rest put away. Then it will be found that the articles may be bought cheaper and better in large quantities than in small ones.

Another way to save expense is to pay for everything as you get it. If you do this you will avoid overcharge and will buy far less. If the money had to be put down at the moment, many unnecessary purchases would be avoided. People who have limited incomes are those who can least afford to live on credit, and unfortunately they do it more than any others.

Speaking of dinners reminds me to say that it is no economy to live poorly. Nature requires a certain amount of nourishment, and will have it, or be revenged, and the revenge will probably take the form of a long doctor's bill or diminished working power. This sort of saving is "penny wise and pound foolish." The things to save out of are shams, false appearances and self-indulgences, not necessities. Where is the saving in working in a dim light to save candles or gas and injuring the sight? in wearing boots that take in water and bring on rheumatic fever? in living on poor food and lowering the system? Far better wear a shabby hat a week or two longer than usual, or dispense altogether with that piece of finery you were contemplating. The worst of it is, however, that people are generally much more willing to dispense with necessities that make no show rather than with useless extravagances that afford an opportunity for a display which every one sees through.

How to Succeed in Business.

It's no wonder that men do not succeed in business more than they do; the wonder is that they succeed so well. They would not, if there were any better men to take their places. Men, as a rule, do not throw their whole soul and mind into an ordinary business; they generally aspire to something greater and thereby lose all chances of success. I will relate a little case in point:

Twenty years ago there was a man in Chrystie Street, New York city, who opened an oyster stand. He simply cooked his oysters in a little better style than at other oyster places. At the bottom of each dish he placed a nicely toasted bit of bread, and turned the well-cooked stew over it. His place was marvellously clean; he attended to the business himself, with scrupulous care in every appointment. Success, of course, crowned his efforts. Room after room had to be taken in to accommodate his patrons. I have myself walked three-quarters of a mile with friends to partake of his extraordinary stews. Three years ago he retired with \$250,000.

Scarcely a day passes now without some person starting an oyster saloon. Considerable expense is incurred to fit them up very nicely; but then they are untidy, table cloths are dirty, oysters are poorly cooked by inexperienced hands, and in a year or so they fail—and it is no wonder. Many years ago Stewart started a little thread and needle store, and being anxious to succeed he bethought to introduce at regular distances before his counters cushioned stools, upon which ladies could rest themselves while shopping. Many in passing the store went in and took a seat, in those primitive days, to rest a moment, but always bought something before they went out. He succeeded, and no wonder. He is now estimated to be worth sixty millions. This same sort of enterprise has been followed up ever since—a little ahead of his competitors in everything.

Young men, if you wish to succeed in any enterprise *excel* in what you undertake. It is not a hard task where there are so many laggards. Most men think it only necessary to open a store and customers will flock in. It is not so; you must be *excelsior*. It's the little extra things that tell. I might cite hundreds of cases coming under my own observation. There was a tailor that commenced business in Rochester eighteen years ago. His name has slipped my memory. He gave better fits than any one else; there was a certain superior style to all his garments. His shop was a pattern of neatness; his large glass windows were the first introduced in that city; they were daily cleaned and shone like the best French glass. I saw a little notice in one of the city's daily papers the other day, saying that he had retired on \$200,000 and upwards. Had that shop been untidy he would have failed long ago, and never been heard of.

I can guarantee success to any young man who will receive these suggestions and follow them out, adding from time to time all his mind will suggest. Once started on this plan it will grow with his growth, until it becomes an inherent principle.

PRESIDENTS OF THE UNITED STATES. An Epitome of the Political History of a Nation.

BY JASPER T. JENNINGS.

Thou, too, sail on, O ship of state!
Sail on, O Union, strong and great!—*Longfellow.*

The United States is a nation of liberty and freedom. In every sense of the word, "the people rule." What a world of liberty is conveyed in that one short sentence! All just governments derive their power from the consent of the governed, in many of the despotisms and absolute governments of the Old World, the aristocracy and monied corporations control the nation for the benefit of the few, and chain the people's will. The ruling power descends by succession from father to son, and is perpetual. It holds the army, the navy, and the keys to the treasury, and from its stern mandate there is no appeal, except through revolution and blood, which would alike subject all to common ruin and destruction. From such a course of terror and barbarity the people turn with horror, and suffer slavery and serfdom, fighting the battle of their oppressors, and paying their money to enrich their treasuries, rather than accept the dread alternative.

No nation of earth's domain is founded on so broad and noble a foundation as ours. Every one of its subjects, high and low, rich and poor, have an equal voice in the government, and there is no one of intelligence and capability that may not be called upon by the sovereign voice of a free people, to preside over some one of its numerous offices, and administer it according to law and justice. The price of our precious liberty was paid in blood and treasure at the time of the American Revolution; and the fell hand of English tyranny was forced to desist. Let us never forget the patriot heroes of that noble day; who laying aside all minor differences, joined the grand brotherhood to struggle desperately against English soldiers and exasperated savages, for the glorious rights and privileges we now enjoy. They passed through the "time that tried men's souls"—they gained the victory, and to us is bequeathed the fruits for which they bled and died.

Every young man in this country must, if he lives, soon become a voter; and, as it were, a shareholder in the government. He will soon be called upon to exercise his elective franchise, and to perform his duties as a citizen. The elective franchise is one of the greatest privileges the free citizen can possess. By it, his rulers, if obnoxious or unfaithful to a majority of the people, are changed at the end of the term for which they were elected, and the chief executive of the nation can be changed every four years. Free criticism is open to all; and the Americans are never slow in the art. Now, far be it from me to enter into any discussion on politics; but no one should undertake to vote without doing so understandingly. It is perfectly right that there should be two political parties in every country, and as long as they possess the God-given right of suffrage, we have little to fear. In regard to which party the voter should choose to identify himself with, we have nothing to say. It is a question for him alone to decide, and in order to do so intelligently, he should take no one's word particularly, but should study and reflect upon the constitution and formation of our government, and the civil and political history of our country, unbiassed by the constant disputes and wrangling of party. He should read both sides carefully, accepting the good and rejecting the bad. Peruse with attention the acts of Congress and the Executive, with comments thereon by the leading papers of both parties, and then form his own opinion. Only such are really free. They are the slaves of no man or party. They go to the polls after due reflection, and cast their votes understandingly. They thus perform their conscientious duty to man, to their country, to God, and they are willing to abide by the result.

Shortly after the close of the Revolutionary war, a convention composed of the most learned and able men convened, to form a just system of government. The result of their labors was the Constitution of our country; one of the most perfect instruments that ever emanated from the hand of man. The first man elected to the office of Chief Magistrate of the Union was George Washington, the patriot hero, that led our brave men to victory. The election was unanimous. John Adams, of Massachusetts, was elected Vice-President. On the 30th of April, 1789, they were duly installed with appropriate ceremony at New York, and the new government commenced. Thomas Jefferson was appointed Secretary of State, Mr. Knox, Secretary of War, and Alexander Hamilton, Secretary of the Treasury. Edmund Randolph was appointed Attorney-General, and John Jay, Chief Justice. The associate judges of the First Supreme Court were John Blair, William Cushing, Robert H. Harrison, John Rutledge, and James Wilson. The two parties at this time were known as Federalists and Republicans. Washington and Adams were unanimously re-elected, and duly installed in 1793; though Washington had consented with reluctance to having his name brought forward as a candidate for the second term. Having served eight years, he retired to his residence at Mount Vernon, in Virginia, where he died December 14th, 1799, at the age of sixty-eight years. He was born February 22d, 1732, and at the time of his first installment was fifty-seven years of age. It is almost universally admitted that he was one of the most honorable and pure-minded men that ever lived. Whatever he said was in earnest; and he was never known to utter a jest, or play the backguard in his life. He left an estate said to have been worth \$800,000.

John Adams, of Massachusetts, was elected by the Federal party, and installed with Thomas Jefferson as Vice-President, on the 4th of March, 1797. He was born in 1735; was sixty-two years of age when he was inaugurated; served his country four years, and died July 4th, 1826, at the ripe age of ninety-one, leaving a moderate property to his heirs.

At the next convention of the Federalists, Mr. Adams was again nominated for re-election, while the Democrats, or Republicans, brought forward the name of Thomas Jefferson. The contest was sharp and spirited; and the result of the election so close, that for many days it was not known who would be president. On counting the two highest numbers of the Electoral College, the result was found to be a tie. The matter now went to the House of Representatives, and the first vote taken was again a tie. Finally, however, after somewhat of an exciting session, during which thirty-five trials were made for a decision, Thomas Jefferson was chosen President, and Aaron Burr, Vice-President. Adams and Pinckney retired from the contest, and the Federalists submitted to the Republican majority, and a change in the government. Jefferson and Burr were duly inaugurated at the City of Washington, March 4th, 1801. A change in the Cabinet followed. Among the rest, Mr. Madison was chosen Secretary of State. It was during his term that Louisiana was purchased from France for the sum of \$15,000,000. At the next Presidential contest, Jefferson was elected by a majority of sixty-two electoral votes against sixteen. George Clinton, of New York, was elected Vice-President, to take the place of Burr. Jefferson was one of the best of American Presidents, and his whole administration was marked with wisdom, prudence, and sound statesmanship. Having served his country in that capacity for eight years, he retired to his home in Virginia, where he died July 4th, 1826, the same day that Adams died in Massachusetts. He was born in 1743; was fifty-eight years old when inaugurated, and eighty-three at his death.

James Madison, of Virginia, was next elected President by the Republicans, and George Clinton, of New York, was re-elected Vice-President. Clinton died before his term expired, was succeeded on the re-election of Mr. Madison in 1813, by Eldridge Gerry, of Massachusetts, who also died in office. It was during Madison's administration that the second war with England occurred. He served eight years, from 1809 to 1817, when he retired from the cares of public life, and died June 28th, 1836. He was born in 1751, was fifty-eight years of age when first installed, and eighty-five at his death.

James Monroe, of Virginia, was next elected by the same party that had been in the majority since the days of Jefferson, and with him Daniel D. Tompkins was elected Vice-President. His course was moderate and wise, and he generally gave good satisfaction as a ruler. John Quincy Adams was appointed Secretary of State, John C. Calhoun, Secretary of War, Mr. Crawford, Secretary of the Treasury, and Smith Thompson, of the Navy. He was first installed March 4th, 1817, and again after his re-election in 1821. He was born in 1758, was fifty-eight years old when inaugurated, served as President eight years, and died July 4th, 1831, at the age of seventy-two.

John Quincy Adams, of Massachusetts, son of the former President from that State, was elected to preside over the tenth presidential term. John C. Calhoun, of South Carolina, was elected Vice-President, and the two were duly installed in the spring of 1825. James Barbour, of Virginia, was chosen Secretary of War, Henry Clay, of Kentucky, was Secretary of State, and Richard Bush, of Pennsylvania, Secretary of the Treasury. He, too, was chosen by the House of Representatives, voting by States. He, like his three predecessors, was fifty-eight years of age when inaugurated, but unlike them, he served as president but four years. He died February 23d, 1848, aged eighty years.

The seventh President was Andrew Jackson, of Tennessee, installed March 4th, 1829. John C. Calhoun was re-elected Vice-President. Their opponents were John Quincy Adams and Henry Clay. John Branch, of North Carolina, was chosen Secretary of the Navy, John H. Eaton, Secretary of War, Martin Van Buren, of New York, Secretary of State, and Samuel D. Ingham, of Pennsylvania, Secretary of the Treasury. Jackson's administration was marked by great firmness and resolution, looking to reform. His proclamation against the Nullification Ordinance, and his veto of the United States Bank Bill, were his two most important acts, rendering his name justly celebrated by both parties to the present day. He was re-elected to preside over the next presidential term, and with him Martin Van Buren, of New York, was elected Vice-President. He was born in 1767, the same year that John Quincy Adams was born; was sixty-two when inaugurated; served eight years, and died June 8th, 1845, at the age of seventy-eight.

Martin Van Buren, the eighth President, was a native of New York. He was born in 1782; and at the time of his inauguration was fifty-five years of age. Richard M. Johnson, of Kentucky, was chosen Vice-President of the Senate. His opponents were divided. Harrison and Granger representing one wing, and Hugh L. White, of Tennessee, and John Tyler, of Virginia, the other. He served four years, and died July 24th, 1862, at the age of eighty years.

The two parties at this time were known as Whigs and Democrats. Their division was mainly on the Tariff question. A National Democratic Convention was held at Baltimore, and Van Buren and Johnson were re-nominated. The Whigs held their convention at Harrisburg, and nominated William H. Harrison, of Ohio, for President, and John Tyler, of Virginia,

for Vice-President. The campaign was spirited; and perhaps many can remember, even yet, the song of "Tippecanoe and Tyler too," as sung by the "Log Cabin Boys," when they met at the political meetings of that eventful period. The Whigs gained the victory, and Harrison was inaugurated March 4th, 1841. He served but one month, and died April 14, 1841, at the age of sixty-eight.

Vice-President Tyler now became President in his stead. He took somewhat of a different course from what had been expected, vetoing the United States Bank Bill, as Jackson had previously, and working with the Democrats to such an extent as to offend his political friends and cause his Cabinet, with the exception of Daniel Webster, Secretary of State, to desert him. He was born in 1790; was fifty-one when installed; served three years and eleven months, and died January 18th, 1862, aged seventy-two.

On the 1st of May, 1844, the Whigs held their convention at Baltimore, and nominated Henry Clay, of Kentucky, for President, and Theodore Frelinghuysen, of New Jersey, for Vice-President. The Democrats met at the same place and nominated James K. Polk, of Tennessee, and George M. Dallas, of Pennsylvania. The Democrats felt sure of success, and often during the campaign they used to sing, "O poor Harry Clay, you never can be President, for Polk is in the way." Polk and Dallas were elected and duly inaugurated in the spring of 1845. It was during this term of the presidency that the Mexican war occurred. Polk was forty-nine years old when inaugurated, served four years, and died June 15th, 1849, aged fifty-four.

The next Whig convention was held at Philadelphia, June 1st, 1848. Zachary Taylor, of Louisiana, the hero of the Mexican war, was nominated for President, and Millard Fillmore, of New York, for Vice-President. The Democrats met at Baltimore a few days previous, and put in nomination, General Lewis Cass, of Michigan, and General William O. Butler, of Kentucky. This time the Whigs were victorious, and Taylor and Fillmore were inaugurated March 4th, 1849. On the 9th of July, 1850, Taylor died, after serving one year and four months, at the age of sixty-six. He was born in 1784.

The presidential duties now devolved upon Fillmore. He was born in 1800, was fifty years old when installed, and served two years and eight months. Taylor's Cabinet had been composed as follows: Secretary of State, John M. Clayton, of Delaware; Secretary of the Treasury, William M. Meredith, of Pennsylvania; Secretary of War, George W. Crawford, of Georgia; Secretary of the Navy, William B. Preston, of Virginia; Secretary of the Home Department, Thomas Ewing, of Ohio; Attorney-General, Reverdy Johnson, of Maryland; and Postmaster-General Jacob Collamer, of Vermont. Upon the accession of Fillmore, the Cabinet was changed as follows: Secretary of State, Daniel Webster, of Massachusetts; Secretary of the Treasury, Thomas Corbin, of Ohio; Secretary of War, Charles M. Conrad, of Louisiana; Secretary of the Navy, William A. Graham, of North Carolina; Secretary of the Interior, Alexander H. H. Stewart, of Virginia; Attorney-General, John J. Crittenden, of Kentucky; and Postmaster-General, Nathan K. Hall, of New York.

In June, 1852, the Democrats held their National Convention at Baltimore, and nominated Franklin Pierce, of New Hampshire, for President, and William R. King, of Alabama, for Vice-President. The Whig Convention soon followed at the same place, and General Winfield Scott and William A. Graham, of North Carolina, were nominated. John P. Hale, of New Hampshire, was nominated by the Free Soil party. The canvass was animating. The Electoral College at that time consisted of two hundred and ninety-six members; two hundred and fifty-four, being the votes of twenty-seven States, were for Pierce, and forty-two, being the votes of four States, were for Scott. Pierce was inaugurated March 4th, 1853. William L. Marcy, of New York, was chosen Secretary of State, James Guthrie, of Kentucky, Secretary of the Treasury, Robert McClelland, of Michigan, Secretary of the Interior, Jefferson Davis, of Mississippi, Secretary of War, James C. Dobbin, of North Carolina, Secretary of the Navy, James Campbell, of Pennsylvania, Postmaster-General, and Caleb Cushing, of Massachusetts, Attorney-General. James Buchanan, of Pennsylvania, was appointed Minister to Great Britain. Pierce was born in 1804, was forty-nine years old when inaugurated, and served four years.

In 1856, the Whigs nominated Colonel John C. Fremont, of California, and William L. Dayton, of New Jersey. The Democrats nominated James Buchanan, of Pennsylvania, and John C. Breckenridge, of Kentucky. The American party nominated Millard Fillmore, of New York, and Andrew J. Donelson, of Kentucky. The contest was exceedingly lively, and the parties exerted themselves to the utmost. Mr. Buchanan was elected by one hundred and seventy-four electoral votes, carrying nineteen States; Col. Fremont had one hundred and fourteen votes from eleven States; and Mr. Fillmore received the eight electoral votes of Maryland, Buchanan and Breckenridge were installed in the spring of 1857. Lewis Cass, of Michigan, was chosen Secretary of State, Howell Cobb, of Georgia, Secretary of the Treasury, John B. Floyd, of Virginia, Secretary of War, Isaac Toucy, of Connecticut, Secretary of the Navy, Jacob Thompson, of Mississippi, Secretary of the Interior, Aaron V. Brown, of Tennessee, Postmaster-General, and Jeremiah S. Black, of Pennsylvania, Attorney-General. Buchanan was born April 13th, 1791, was sixty-five years of age when inaugurated, and served four years.

On the 23d of April, 1860, the Democratic National Convention assembled at Charleston, South Carolina. The session was stormy, and for some time they could not agree. Finally, Stephen A. Douglass, of Illinois, and Herschel V. Johnson, of Georgia, were nominated. The Southern Democrats being dissatisfied, met in Baltimore, June 25th, and nominated John C. Breckenridge, of Kentucky, and General Joseph Lane, of Oregon. The Republicans met in Chicago, May 16th, and nominated Abraham Lincoln, of Illinois, and Hannibal Hamlin, of Maine. The Constitutional Union, or American party, met three days later in Baltimore, and put forward the names of John Bell, of Tennessee, and Edward Everett, of Massachusetts. Thus there were four parties in the field. The election came off November 6th. Mr. Lincoln received one hundred and eighty electoral votes, and all the others, one hundred and twenty-three. He was therefore duly inaugurated March 4th, 1861. His term, as is well known, was exceedingly stormy. The great rebellion burst forth, and from first to last, the nation was rent by the direst civil war the world has ever witnessed, and the country was deluged in blood beyond all parallel. The following able gentlemen composed his Cabinet. William H. Seward, of New York, Secretary of State, Salmon P. Chase, of Ohio, Secretary of the Treasury, Simon Cameron, of Pennsylvania, Secretary of War, Gideon Wells, of Connecticut, Secretary of the Navy, Montgomery Blair, of Maryland, Postmaster-General, Edward Bates, of Missouri, Attorney-General, and Caleb B. Smith, of Indiana, Secretary of the Interior.

The next Republican Convention was held at Baltimore, June 7th, 1864. Mr. Lincoln was re-nominated. Andrew Johnson, of Tennessee, was nominated for the Vice-Presidency. The Democrats held their Convention at Chicago, August 26th, and nominated General George B. McClellan. George H. Pendleton, of Ohio, received the nomination for Vice-President. Lincoln and Johnson were elected, and entered upon the duties of their office March 4th, 1865. On the night of the 14th of April following, the President was struck down by the hand of an assassin, and the Vice-President, Andrew Johnson, took his place. Mr. Lincoln was born February 12th, 1809; served as President four and one-eighth years, and died April 15th, 1865, aged fifty-six.

Upon the accession of Mr. Johnson, Lafayette S. Foster, of Connecticut, then acting as President of the Senate, became Vice-President. Mr. Johnson soon disagreed with his party, and went over to the Democrats, as Mr. Tyler had done before. Charges were brought against him, and his trial came on, but the evidence was not deemed sufficient for impeachment, and he was acquitted. His Cabinet was as follows: William H. Seward, of New York, Secretary of State, Hugh McCulloch, of Indiana, Secretary of the Treasury, Edwin M. Stanton, of Pennsylvania, Secretary of War, Gideon Wells, of Connecticut, Secretary of the Navy, James Harlan, of Iowa, Secretary of the Interior, James Speed, of Kentucky, Attorney-General, and William Dennison, of Ohio, Postmaster-General. The President's salary, as it always had been, was \$25,000 a year; members of the Cabinet, \$8,000. Salmon P. Chase was made Chief Justice, with a salary of \$6,500. Resident Foreign Ministers received \$7,500, and Ministers Plenipotentiary, etc., from \$10,000 to \$17,500. Mr. Johnson served three and seven-eighths years, and died July 31st, 1875.

The Republicans opened the next campaign by assembling in Chicago, May 20th, 1868, and nominating General U. S. Grant, of Illinois, and Schuyler Colfax, of Indiana. The Democrats met in New York, July 5th, and chose Horatio Seymour, of New York, and Frank P. Blair, of Missouri. Victory rested with the Republicans, and Grant and Colfax were invested with the titles of their office March 4th, 1869. Elishu B. Washburn, of Illinois, was chosen Secretary of State, Alexander T. Stewart, of New York, Secretary of the Treasury, General J. M. Schofield, of Illinois, Secretary of War, Adolph E. Borie, of Pennsylvania, Secretary of the Navy, Jacob D. Cox, of Ohio, Secretary of the Interior, E. R. Hoar, of Massachusetts, Attorney-General, and J. A. J. Creswell, of Maryland, Postmaster-General.

The next National Republican Convention convened at Philadelphia, June 5th, 1872. Mr. Grant was re-nominated for a second term. Henry Wilson, of Massachusetts, received the nomination for Vice-President. The Liberal Republicans met early in the season at Cincinnati, and nominated Horace Greeley, of New York, and B. Gratz Brown, of Missouri. The Democrats met in Baltimore, July 9th, and united with the Liberal Republicans. The Republicans were again the victors, and Grant entered upon the duties of his second term in the spring of 1873. There were several changes in the Cabinet which we have not space to enumerate. Mr. Grant is the only ex-president now living.

The political campaign of 1876 is fresh in the mind of the reader. The Republicans assembled at Cincinnati in May, and chose Rutherford B. Hayes, of Ohio, and William A. Wheeler, of New York. The Democrats held their convention in St. Louis, and nominated Samuel J. Tilden, of New York, and Thomas A. Hendricks, of Indiana. The contest was sharp and exciting. The election came off November 7th, and so close was the vote, that both parties claimed the victory. It remained undecided till February, when the Electoral Commission, composed of an equal number of members of the House, Senate, and Supreme Court, decided in favor of Mr. Hayes, who, therefore, became the nineteenth President.



PLAYMATES.

BY J. G.

Two puppies upon the floor;
 Whoever would wish for more
 Or better playmates than they?
 Harry, coming from school, looks out,
 To see what his puppies are about,
 And finds them both at play,
 Tumbling over each other in glee,
 Happy and lively as puppies can be;
 Tray, the black, and Trim, the white,
 Having in fun a regular fight.
 Uppermost now is Tray, the black,
 Now he's sprawling upon his back—
 Now Trim's rolling upon the ground,
 And then they both start up with a bound
 After a ball that they both have found,
 Now in this corner, and now in that,
 Until they are joined by the tortoiseshell cat,
 Who is quite as fond as they of play,
 And the three go rolling and tumbling away.
 One at the top, and two below,
 Round and round the kitchen they go,
 And Harry enjoys the fun, I know.
 Better playmates he does not need;
 They never quarrel, but all are agreed
 To have as much fun as they're able.
 And when the puppies are hungry and tired,
 Harry gives them the food that is required,
 And as good a bed as can be desired,
 And shuts them in the stable;
 And 'mongst the straw they sleep away
 Until it is time to get up next day
 To have another game of play.

Slumbering Plants.

It is well known that plants sleep at night; but their hours of sleeping are a matter of habit and may be disturbed artificially, just as a cock may be waked up to crow at untimely hours by the light of a lantern. A French chemist subjected a sensitive plant to an exceedingly trying course of discipline by completely changing its hours—exposing it to bright light at night, so as to prevent sleep, and put it into a dark room during the day. The plant appeared to be much puzzled and disturbed at first. It opened and closed its leaves irregularly, sometimes nodding, in spite of the artificial sun that shed its beams at midnight, and sometimes waking up, from the force of habit, to find the chamber dark in spite of the time of day. Such are the trammels of use and wont. But after an obvious struggle the plant submitted to the change, and turned day into night without any apparent ill effects.

Vinegar.

BY JAS. P. DUFFY.

Vinegar consists of a chemical called *acetic acid*; this chemical making it a favorite addition to food, and at the same time assisting for its digestion. The acid is formed from alcohol by the absorption of oxygen, and may be obtained from any spirituous beverage by allowing it to sour gradually by exposure to the air in imperfectly closed vessels. On the large scale, however, it is generally made by allowing the air to have access to weak alcohol spread in a thin layer over a very great surface. This operation is conducted in large casks filled with shavings of wood, over which the alcoholic liquid (as cider, whiskey or brandy,) diluted with water slowly trickles. The cask is furnished with a false bottom, and with a head perforated with small holes which serve to distribute the alcohol evenly over the shavings. Air enters the cask through holes in the sides, and escapes through tubes in the head. The liquid which runs out of the cask may be returned to the top until the alcoholic liquid is entirely converted into acetic acid. The cask may be made of such size, and the flow so regulated that the conversion of the alcohol into vinegar is complete after one operation.

In order to increase the sour taste of the vinegar, the admixture of a thousandth part of sulphuric acid is permitted in some places. If added in a larger quantity the sulphuric acid is injurious.

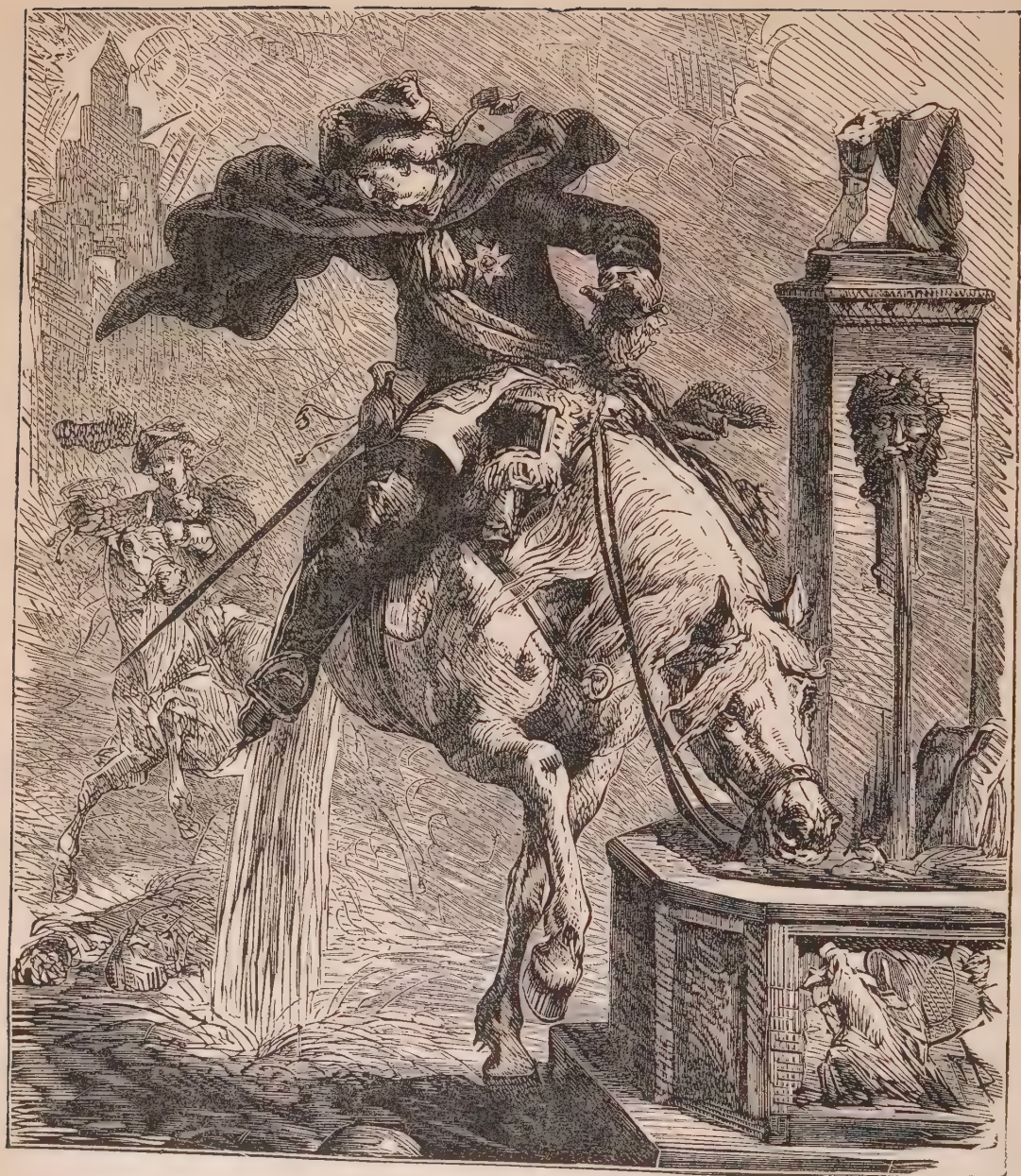
As acids are capable of transforming starch into sugar, the vinegar added to salad is likewise to be regarded as a promoter of digestion. Only in soups of peas or beans vinegar is to be rejected, as by it even if added in excess, the legumin is brought into an undissolved state.

Beverages containing vinegar have a dissolving action on the blood, and are cooling; and in milk the proportion of casein-cells containing the butter decreases if the mother take much vinegar.

Because of this solution of the most important constituents of the blood, it would appear a lamentable ignorance in young girls, from vanity, to produce by means of vinegar an artificial thinness. In attaining this aim it very often happens that they incur dangerous diseases which only too often carry the victim of vanity to a premature grave.

Battle With a Grizzly Bear.

A few weeks ago, Dr. Swain, of Sacramento, went on a hunting expedition to a point about one hundred miles from there in the eastern part of Monterey county. In the company was an old mountaineer called "Rocky," who had become famous as a bear hunter. One morning Rocky started out of camp and was laboriously toiling along a narrow trail on the side of a deep canyon. When in a wild portion of the mountains, he saw on the other side of the canyon two young grizzlies playing on a grassy beach of land. Immediately his splendid revolving rifle was at his shoulder, and he fired. One cub he killed instantly, but the other lived long enough to cry almost like a child for the mother bear. Soon a crackling of bushes was heard behind, and Rocky turned just in time to see the mother, enraged and excited, almost upon the slayer of her offspring. The bold hunter again raised his rifle, but before he could use it the bear, by one stroke of her powerful paw, hurled it far out of his reach. A hand-to-hand encounter was now the only way out of the difficulty, and Rocky drew his huge knife. He raised it, and swiftly it descended, gleaming through the air into the heart of the bear, and none to soon, for as he struck, the bear also dealt him a powerful blow on his side, which stretched him insensible some distance from the scene of the encounter, the knife remaining buried to the hilt in the bear's shaggy side. After a time the hunter recovered sufficient to drag himself to camp, where he was obliged to remain for several days before he recovered from the terrible blow he had received. Other members of the party went to the place and found the cubs dead, and a short distance from them the old bear, also dead. The gun and knife were recovered, and for several days bear steaks were the bill of fare in that camp. Dr. Swain says the meat of the cubs was delicious—fat and tender. There are many grizzlies in that section, and only the most experienced hunters, like Rocky, have any business hunting them. There is probably no animal in the world more dangerous or difficult to kill than the grizzly bear of California.



BARON MUNCHAUSEN

AND

HIS WONDERFUL STORIES.

Hieronymus Karl Friedrich von Munchausen, Baron, was a German soldier, born in 1720 on his paternal estate of Bodenwerder, Hanover, and died there in 1797. He was descended from the so-called white branch of the Munchausen family, served in his youth as a cavalry officer in the Russian army, and passed his latter days in Hanover.

He delighted in telling the most wonderful stories of his adventures in the campaign against the Turks in 1737-9, which gained for him in Germany the reputation of one of the greatest liars living. The stories themselves were soon repeated from one end of the country to the other, and created then, as now, universal merriment. They are said to have been first compiled by Rudolph Erich Raspe.

The last German edition of the *Adventures of Baron Munchausen* contains an able introduction by Adolf Ellisen, upon the life and writings of the author, the sources and originals of the Munchausens, and the literature and fictitious travels in general. The tradition of the baron's story-telling is supported in the work by the evidence of a clergyman who lived much in his society, and who informed Mr. Ellisen's father, a medical man of Gottingen, who himself visited the baron in his latter days, that the old officer used to relate his most surprising adventures "in a cavalier manner, with a military emphasis, but without any passion, and with the lazy humor of a man of the world, as things which required no explanation or proof."

When I was a boy, I used to delight in the adventures of Baron Munchausen, although I knew they could not be true, and were written only to amuse. They are now frequently alluded to in the current literature of the day, and it is well to know something about these remarkable stories. I shall therefore, repeat some of his most wonderful adventures for the entertainment of our youthful readers, for whom this article is especially written.

Baron Munchausen owned a white horse. He had been crossing a marsh, in which his horse sank and stuck fast. How do you think he got him out? Why, he said that he took hold of his hair queue (queues were fashionable in the last century) and pulled it straight up till he dragged his horse's legs and body out of the marsh, and thus set it free! As if any man could do such a thing!

At another time he leaped his horse through a chaise which crossed his way. He declared that he once did so, and took off his hat as his horse was flying over, and begged pardon of the ladies for disturbing them.

"Once," said the baron, "I was fighting against the Turks, and charged up to the gate of the town. Just as I got through, however, the iron portcullis—a heavy gate let down from above—fell behind me. I did not care, and galloped on. When in the city, my horse flew to a water fountain, and began to drink eagerly. It drank and drank, and seemed as if it would never stop. All at once I heard the sound of water behind me, and, looking round, saw to my surprise, that there was only half of my horse left—the other half had been cut off at the gate of the city—and the water was rushing out behind me as fast as he drank it, (see cut) without refreshing or doing him any good! How it could have happened was quite a mystery to me, till I returned with him to the town-gate. There I saw, that when I rushed in, the portcullis had totally cut off his hind part, that still lay quivering on the outside of the gate. It would have been an irreparable loss had not our farrier contrived to bring both parts together while hot. He sewed them up with sprigs and young shoots of laurel that were at hand. The wound healed; and what could not have happened but to so glorious a horse, the sprigs took root in his body, grew up, and formed a bower over me; so that afterwards I could go upon many other expeditions in the shade of my own and my horse's laurels.

The baron was once engaged in the siege of a city which was very hard to take. No plan could be had of the works, so as to know where to make an attack. What do you think the baron said he did? He declared that he jumped astride a cannon ball and rode on it over the city, and that while it was flying through the air, he drew a full plan of the whole fortress. He got back again the same way, by jumping across a bomb that was fired at the ships in which he had come to the place.

When dining with some Russian officers once, a bomb shell flew into the tent. You may think what terror every one was in. But the baron took the bomb, tied some cords quickly over it, and slung it back into the Turkish camp before it burst. In fact, it burst among the Turks, and did great damage.

Another time, the baron told his friends that he set off from Rome on a journey to Russia, in the midst of winter. The snow was very deep. Night and darkness overtook him. No village was to be seen, so he tied his horse to a post to keep it from straying, and lay down on the snow to sleep until morning. He says: "It is not easy to conceive my astonishment to find myself, when I awoke at daylight, in the midst of a village, lying in a church yard; nowhere was my horse to be seen, but I heard him soon after neigh above me. On looking upwards, I beheld him hanging by his bridle to the weather-cock of the church steeple. Matters were now very plain to me. The village had been covered with snow over-night. A sudden change of weather had taken place; I had sunk down to the church-yard while asleep, gently, and in the same proportion as the snow had melted away, and what in the dark I had taken to be the stump of a little tree appearing above the snow, to which I had tied my horse, proved to have been the cross or weather cock of the steeple. Without long consideration, I took one of my pistols, shot the bridle in two, brought down the horse, and proceeded on my journey. He carried me well. Advancing into the interior parts of Russia, I found traveling on horseback rather unfashionable in winter; therefore, I submitted, as I always do, to the custom of the country, took a single-horse sledge, and drove briskly toward St. Petersburg. I do not exactly recollect whether it was in Eastland or Jugemanland, but I remember that in the midst of a dreary forest, I spied a terrible wolf making after me with all the speed of ravenous winter hunger. There was no possibility of escape. Mechanically, I laid myself down flat in the sledge, and let my horse run for our safety. What I wished, but hardly hoped or expected, happened immediately after. The wolf did not mind me in the least, but took a leap over me, and falling furiously on the horse, began instantly to tear and devour the hind part of the poor animal, which ran the faster for his pain and terror. Thus unnoticed and safe myself, I lifted my head slyly up, and with horror I beheld that the wolf had ate his way into the horse's body; it was not long before he had fairly forced himself into it, when I took my advantage, and fell upon him with the butt-end of my whip. This unexpected attack in his rear frightened him so much, that he leaped forward with all his might; the horse's carcass dropped to the ground, but in his place the wolf was in the harness, and I, on my part, whipping him continually, we both arrived in full career safely to St. Petersburg, contrary to our respective expectations, and very much to the astonishment of the spectators.

The baron also gives a description of how he was nearly lost in the Mediterranean Sea. He says: "I was bathing in that pleasant sea, near Marseilles, one summer afternoon, when I discovered a very large fish with his jaws quite extended, approaching me with the greatest velocity. There was no time to be lost, nor could I possibly avoid him. I immediately reduced myself to as small a size as possible by closing my feet and placing my hands also near my sides, in which position I passed directly between his jaws, and into his stomach, where I remained some time in total darkness, and comfortably warm as you may imagine. At last it occurred to me, that by giving him pain he might be glad to get rid of me: as I had plenty of room I played my pranks, such as tumbling, hop, step and jump, &c., but nothing seemed to disturb him so much as the quick motion of my feet in attempting to dance a hornpipe. Soon after I began this dance, he put me out, by sudden fits and starts, but I persevered. At last he roared horribly, and stood up almost perpendicularly in the water, with his head and shoulders exposed, by which he was discovered by the people on board an Italian trader, then sailing by, who harpooned him in a few minutes. As soon as he was brought on board I heard the crew consulting how they should cut him up

so as to preserve the greatest quantity of oil. As I understood Italian, I was in most dreadful apprehensions lest their weapons employed in this business should destroy me also; therefore, I stood as near the centre as possible, for there was room enough for a dozen men in this creature's stomach, and I naturally imagined they would begin with the extremities; however, my fears were soon dispersed, for they began by opening the bottom of the belly. As soon as I perceived a glimmering of light, I called out lustily to be released from a situation in which I was now almost suffocated. It is impossible for me to do justice to the degree and kind of astonishment which sat upon every countenance at hearing a human voice issue from a fish, but more so at seeing a naked man walk upright out of his body; in short, gentlemen, I told them them the whole story as I have done you, whilst amazement struck them dumb.

"After taking some refreshment, and jumping into the sea to cleanse myself, I swam to my clothes, which lay where I had left them on the shore. As near as I can calculate, I was near four hours and a half confined in the stomach of this animal."

He also relates the experience of his father in crossing the English Channel to Holland, as he declares he heard him relate it, as follows: "On my arrival," says my father, "at Helvoetsluys, I was observed to breathe with some difficulty; upon the inhabitants inquiring the cause, I informed them that the animal upon whose back I rode from Harwich across to their shore, did not swim. Such is their peculiar form and disposition, that they cannot float or move upon the surface of the water; he ran with incredible swiftness upon the sands from shore to shore, driving fish in millions before him, many of which were quite different from any I had yet seen, carrying their heads at the extremity of their tails. I crossed," continued he, "one prodigious range of rocks, equal in height to the Alps, (the tops or highest part of these marine mountains are said to be upwards of one hundred fathoms below the surface of the sea) on the sides of which there were a great variety of tall, noble trees, loaded with marine fruit, such as lobsters, crabs, oysters, scollops, muscles, cockles, &c., &c.; some of which were a cart-load singly, and none less than a porter's! All those which are brought on shore, and sold in our markets, are of inferior dwarf kind, or properly, waterfalls—fruit shook off the branches of the tree it grows upon by the motion of the water, as those in our gardens are by that of the wind. The lobster-tree appeared the richest, but the crab and oyster were the tallest. The pariwinkle is a kind of shrub; it grows at the foot of the oyster tree, and twines round it as the ivy does the oak. I observed the effect of several accidents by ship-wreck, &c., particularly a ship that had been wrecked by striking against a mountain or rock, the top of which lay within three fathoms of the surface. As she sunk, she fell upon her side, and forced a very large lobster-tree out of its place. It was in the spring when the lobsters were very young, and many of them being separated by the violence of the shock, they fell upon a crab-tree which was growing below them; they had, like the farina of plants, united, and produced a fish resembling both. I endeavored to bring one with me, but it was too lively and cumbersome, and my salt water Pegasus seemed much displeased at every attempt to stop his career whilst I continued upon his back; besides, I was then, though galloping over a mountain of rocks that lay about midway the passage, at least five hundred fathoms below the surface of the sea, and began to find the want of air inconvenient; therefore, I had no inclination to prolong the time. Add to this, my situation was in other respects very unpleasant; I met many large fish who were, if I could judge by their open mouths, not only able, but really anxious to devour us. Now, as my Rosinante was blind, I had these hungry gentlemen's attempts to guard against, in addition to my other difficulties in reaching Holland."

It is well known that travelers have told a great many things that never happened, but Munchausen went so far beyond any one else in his narratives, that he seems to have made them more careful ever since his adventures were published. No one wished to be classed among such dreadful inventors as the baron, so they adhered more closely to facts. Baron Munchausen's stories have, then, accomplished some good. No one entertains a thought of their truth, and their very absurdity serves to amuse, and create a laugh without doing any harm. We wish we could say as much of many boys' and girls' papers of the present day. Equally absurd and improbable are the adventures and experiences of their story characters; but without a practical knowledge of life as it is, youthful readers imbibe from them entirely erroneous ideas of the world and their surroundings.

We read not long since an account of three boys who ran away from good homes and kind friends in search of adventure. They managed to get some distance from home, but on the way encountered no thrilling adventure and no opportunities for distinguishing themselves by a display of valorous courage or daring exploit. They found themselves strangers in a Western city, without money or food, and very glad to communicate with their anxious friends, and return to the homes left with such disdain a few weeks before—not as heroes, but, we trust, with an experience that will be of service to them in the future.

Much harm is the result of unprofitable reading. A taste for instructive literature is lost; the mind becomes in a measure diseased, and a distorted imagination overlooks the quiet comfort of practical everyday life which most of us experience, and look vaguely beyond to an existence aglow with interest and excitement. When real life, with its manifold cares, and

common-place routine is attained with manhood and womanhood, disappointment and dissatisfaction with their condition is the result. To settle down to any daily employment, or ordinary method of earning bread, is utterly distasteful. May not this fact alone, account for many of the cases of shiftlessness, want of energy and determined idleness afflicting many young men and women of to-day? Because a brilliant or notable career is not accessible to all, many lead an idle life of pleasure, unsatisfactory to themselves, burdensome to their friends, and disastrous to the commonwealth of the nation.

A taste in the young for healthy reading should be by every possible means encouraged. Biography, natural history and instructive literature should be presented in attractive form. The GROWING WORLD is intended to wield its influence in this direction. Every pains is taken to have its columns filled with interesting, instructive and elevating reading matter. No better paper or periodical can be introduced into the family circle of American homes.

The following amusing affidavit with which Baron Munchausen introduces his marvelous narrative to the public, may prove, in conclusion, interesting to our readers:

At the City of London, England:

We, the undersigned, as true believers in the *profit*, do most solemnly affirm that all the adventures of our friend, Baron Munchausen, in whatever country they may lie, are positive and simple facts. And as we have been believed, whose adventures are ten times more wonderful, so we do hope all true believers will give him their full faith and credence.

GULLIVER,
SINBAD,
ALADDIN.

Sworn at the Mansion House,
9th November, in the absence
of the Lord Mayor.

JOHN, (the porter)

Nitric Acid.

BY JAS. P. DUFFY.

One of the most important combinations of nitrogen with oxygen, is that of nitric acid. This liquid, two abundant sources of which are found in nature and are familiar as articles of commerce, is very extensively used, and has a wide application in the useful arts as a solvent. The two sources from which it is mostly procured are saltpetre and soda-nitre.

Saltpetre, or nitre, is a whitish crystalized substance, much resembling, both in taste and appearance, common salt. The principal source of its supply is India. Soda-nitre is collected on a desert tract in Peru and Chili, and forms a source of much profit to the person engaged in exporting it. It differs from saltpetre only in the fact that it contains, as the chief element, *potassium*, whilst that of saltpetre is *sodium*. Nitric acid is obtained from either of these by means of the reaction of sulphuric acid on them, as is shown by the experiment which illustrates the obtaining of the acid.

Into a glass retort, shaped somewhat like a pipe, with the exception that the bowl is round and has no external opening, 530 grains of either soda-nitre or saltpetre are introduced. One and a half ounces of strong sulphuric acid are then poured in the retort through the neck, there being but this one opening in it. The bottom of the retort is then placed on a small pan containing enough sand to steady it, and leave a film under it of about one inch of sand. Heat is then applied to the bottom of the pan. A vessel called a receiver is now immersed three-quarters in a vessel of water, and then connected with the neck of the retort so that as the substances in the retort are boiling the vapor of them will pass into the receiver, which is simply a glass vessel having two openings, one of which is similar to the neck of the retort, the other resembling that of a bottle. Soon after applying, reddish vapors appear for a moment in the retort and then disappear, and a yellow fuming liquid begins to condense and run into the receiver, which is kept covered with wet cloths, the top opening being loosely covered with a bit of glass. When the substances in the retort become tranquil, the heat is withdrawn and the operation is completed. The acid thus obtained is pure, and has but a very faint yellow color. It is about one and one-half times as heavy as water, possesses an intensely sour taste, and in all manipulations with it care should be taken to avoid getting it on the skin, as it turns the same to a deep yellow color. With hydrochloric acid it forms *aqua regia*, the only liquid that will dissolve either gold or platinum. If cotton wool be digested in strong nitric acid, its characteristics will be entirely changed, for after washing it with water and then drying it, it will become highly explosive, forming the gun-cotton now so much used for military purposes.

The Future of Animals.

BY M. ERWIN.

In considering the probability of a future existence for the lower animals, one is constantly met with the assertion, that "animals are actuated exclusively by instinct." This is not true, nor is it often claimed by the close student of Natural Science, but, as one of those popular phrases which so often catch the ear of public credence, when the most finished and elaborate chain of reason, deduced from facts established by years of deep and careful research, fails to create a wave upon the sea of public sentiment.

When the assertion before mentioned has been made to me, I have seldom failed to ask for a clear definition, as the author understood it, of the term instinct, and in no single instance have I received an expression embodying the idea properly conveyed by the word. I believe the term to be popularly used, to designate the intelligence of animals with whom we cannot hold an interchange of thought, for want of the conducting medium of speech, or other mode of mutual comprehension.

That the mentality of such animals is relatively much lower than our own, is demonstrated in a thousand ways. Popular prejudice has magnified the dividing space into a yawning gulf, and assuming it to be the boundary between the mortal—the things that perish utterly—and the immortal which endures forever, has posted it with warning finger-boards proclaiming it impossible.

The foe most formidable to the acknowledgment of a future for animals, as to other advances of knowledge, is not the want of ability on the part of the masses to understand the subject when impartially considered, but a lack of thought; an unwillingness to consider. Let us draw the line as nearly as possible between instinct and reason. Instinct is disposition. It operates unthinkingly; if you will allow the phrase, mechanically. It learns nothing by experience; it borrows nothing from example. It is an inheritance, an endowment to each individual, from the stores of wisdom inherited or acquired by its progenitors. Instinct cannot be educated; much less is it capable of self-development. That animals may be educated, and in some instances are capable of developing wisdom by observation and reflection, is established by presumptive evidence, so strong that few persons are rash enough to couple it with doubt. And it is furthermore established, that when domesticated animals are educated in any one particular branch of service, their young are more easily trained to the same branch of service than to any other, and learn in much less time, to perform the duties required of them, than do the young of animals bred in another branch of service. This is not true in every instance, for among animals as among humans, individuals differ in tractability, but, as a general proposition, it may be easily verified. When animals subsisting upon certain kinds of food are removed to remote localities where they cannot obtain the same varieties, and are obliged to subsist on provender to which, at first, they perhaps exhibit dislike, they acquire by continued use a taste for it which they transmit to their young who instinctively crave the same food. These examples clearly show that the education or tastes acquired by the parents are developed in the offspring as instincts, or in other words, that instinct is partially, if not wholly, *transmitted reason*. Instinct, then, exists only as an arbitrary title for inherited intelligence. The moment that surrounding circumstances modify or qualify its action, it loses its distinctive features, and is no longer pure instinct.

Instinct is often spoken of as a sort of subtle divination divinely bestowed upon the lower animals, a species of innate prescience, the special gift of the Creator. Accepting the theory of creation, it seems reasonable that the animals created and placed upon the earth to gain a subsistence, should have been gifted with such powers of choice and discrimination as were necessary to their preservation and well-being. We have ample evidence that man was thus Divinely endowed. Placed in a world abounding in that which might work good or evil according to its use, the need of a matured intelligence was imperative, and it was supplied. Had not this knowledge been absolutely necessary to existence, there can be little doubt that beings endowed with reasoning powers would, by the exercise of their faculties, have acquired the same intelligence. Granting that

animals were created with instinctive knowledge, does this preclude or even diminish the probability of their immortality? Quite the contrary. This act of creation was no more and no less miraculous than the creation of their physical structures, and the propagation of both was made for future time dependent upon the concurrence of natural laws. To establish the fact that instinct is in reality reason (inherited) is to destroy the chief argument urged against the future life of animals. Proof is accumulating, and error will soon be crushed under its weight. Swift speed the day.

OCCUPATION.—What a glorious thing it is for the human heart! Those who work hard seldom yield to fancied or real sorrow. When grief sits down, folds its hands, and mournfully feeds upon its own tears, weaving the dim shadows that a little exertion might sweep away into a funeral pall, the strong spirit is shorn of its might, and sorrow becomes our master.

An Old New-Englander's Will.

A well-known artist of San Francisco has on exhibition in his studio the copy of a curious will, which deserves to be framed and hung up in the New-England kitchen. It was made by his grandfather, Silas Tappen, in 1782, and admitted to probate, although not without contest, in Salem, Mass., in 1787. Not drawn after the most approved model, the old gentleman's hard, common sense was manifest in it, and the law found no serious defect. After the usual, "By the grace of God I, Silas Tappen, being of sound mind, etc.," he comes directly to the point: "I bequeath to Betsy Ellen Pringle, daughter of Catherine Pringle—as I have had opportunity since my marriage with her to find out—my second wife, now living, my buckskin purse, together with \$1 in good and lawful money, the same to be given to her by my hereinafter-to-be-appointed executor as soon as the breath shall have left my body—the aforesaid lawful dollar as an equivalent for the peace and quiet brought into my house, by her, and my purse as an object long admired by her and according to her tastes. To her sisters and aforementioned mother, and various other relatives, found by me after my aforesaid marriage to have passed to me as part and parcel of my second wife, I do give and grant to them forever that right, which I have never been disposed to deny them, of sojourning elsewhere than in my house and upon my providing; and I do most devoutly pray, for the sake of any misguided man deserving of sympathy, and before proposing marriage to the said sisters, mothers, or my wife then widow, he shall have become so demented as they. To my oldest son, John, who seems from his cradle to have endeavored to nullify any parental and filial feeling which was natural between us by means of an incessant and remorseless application to the fiddle and flute, I do bequeath the liddle which I have left of love for music, together with my fiddle long since worn out by him, and do devise to him subject to his step-mother's right of dower, for which right the law, and not his father, is responsible, all of my right, title and interest in my homestead at Salem, where at this herein date I do reside, together with everything real and personal and by way of easements to its belonging, to him and his heirs forever. To my other children, Samuel and Mary, I do bequeath all my personal property and assets, with the exceptions herein noted, after the payment of my debts, of which I have none, save the debt of nature, all in the amount, of moneys deposited in the bank of Salem, and other chattels, of \$3,000 of lawful money; and to my children I do devise and bequeath these things only upon one condition, viz., that in respect to my memory they or any of them shall not, in any manner, contribute to the support of Catherine Pringle or her daughters. In which event, I direct, my executor hereinafter mentioned to make over to the Massachusetts Insane Asylum, every dollar and all property herein given to them."

The testator finished by directing his executor to give, if there was no objection offered by his heirs, certain things of small value to his friends, and then named as his executor the musical son. It was signed, sealed, witnessed, and acknowledged in the most elaborate form, and, although contested by the widow on the ground that at the time this will was made the testator was insane, the jury decided that there was nothing unnatural in his ill-feeling toward his mother-in-law and family, and that he was competent to make a will.



"HOLD ME UP HIGHER, FATHER."

"Hold me up higher, father—higher still—
The highest are the best."
So the father held her higher up until
The child had gathered to her young heart's will
And left the rest.

The morning dew
Lay heavy on the grass, and the pale light
Upon the garden spaces brighter grew
As the great sun rolled slowly into sight.
Two mornings meeting there beneath the trees
Smiled on each other for a day begun.
Whose hour's to end the soonest? hers or these
"That lay along the pathway of the sun?"
None knew, for hidden in the mid-day light,
The future lies in thickest, darkest night.

Upon a cottage roof and lattice fell
The red sun's rays,
Ending that one of many autumn days,
The light ineffable.
Within, upon a tiny cot, there lay
That child's form, still and pale; her life had fled,
And left her silent, numbered with the dead.
Before the sun had reached his eventide
Her sun had set in darkness and she died.
Her heavenly father drew her up until,
In his fair garden blest,
From off the tree of life at will
She should pluck fruit, and find that still
The highest was the best.

The Freedmen's Memorial of Lincoln.

The statue of Emancipation, unveiled at Washington April 14th, to the memory of Abraham Lincoln, is a testimonial of the appreciation of the colored people of the great service rendered them by the martyr President. The subscription to the fund was begun on the morning after the assassination by a contribution of five dollars by Charlotte Scott, a colored washerwoman of Marietta, Ohio. The colored soldiers increased the fund by liberal contributions, and the colored people all over the United States, added their mite until sufficient was secured. The original cost of the monument was seventeen thousand dollars, and this and the transportation and other incidental expenses have all been paid by the subscriptions of the colored people. The last congress generously appropriated three thousand dollars to erect the pedestal, and the President directed that the monument should pass the Custom House free of duty.

The statue was designed and executed by Thomas Ball, an American sculptor, who has resided for many years in Florence, Italy, and is decidedly the best figure of Lincoln yet made. It is in bronze, colossal in size,

being twelve feet high, resting upon a pedestal ten feet high, and represents Lincoln standing beside a monolith, upon which is the face of Washington in *bas-relief*, holding in his left hand the proclamation of emancipation, his right hand outstretched over the kneeling figure at his feet. The eyes of the martyr president are looking down upon the figure of an African slave, almost prostrate, whose shackles still encircle his limbs, although the chains which connect them have been broken.

A Horse's Sense of Smell.

An African pony, unlike Job's war horse, "smelleth" not "the battle afar off" but he will smell a poisonous snake at a sufficient distance to avoid him.

An English gentleman was leading his pony one day in South Africa, when he saw his Kaffir servant suddenly jump on one side. Knowing that it was a snake that had alarmed him, the gentleman dropped the reins and went forward to kill it. It was a puff-adder, the reptile which, it is thought, Cleopatra used to commit suicide. Killing it with a stone, he examined its glands and found them filled with poison.

On returning to the pony and advancing his hand to take the reins, the horse shied back in great alarm. For several minutes he would not allow his master to approach. Some of the odor of the adder had attached itself to the gentleman's hands, and the cautious animal, being warned by his sense of smell, was afraid that there was danger even in his master's touch.

The horse's nose is, as every boy who has trained a colt knows, one of his means of gaining knowledge. If a horse is afraid of an object, the best way to remove his fear is to let him smell of it.

Ingenuity of Smugglers.

All kinds of devices are often brought to light. Elegantly-dressed passengers, and often persons of good standing in society, find themselves in strange predicaments as the result of these searches. The only safe rule, say the inspectors, is to search every piece of baggage thoroughly. This, however, is seldom done. The officers grow to be confident in judgment of human nature, and often the search is merely formal. Women are employed to search women, and they have the reputation of being more thorough than their brother detectives. These women are often marked characters. Contrary to one's expectations, the best women-searchers come from the South and not from the sterner atmosphere of New England. This is said to be owing to a kind of business ability inherited from the French ancestry of many Southern families, especially in Louisiana and Maryland. In France nearly all of the smaller shops are conducted by women. Some of the female inspectors are very lady-like in appearance and fashionably dressed. The majority, however, affect the severe in style. The ordinary type is dressed in gray or other sober colors, with a meagerly-trimmed jockey hat, and is from forty to fifty years old. She has a business manner, and there is emphatically no nonsense about her. She will compel a lady to take out her false teeth with the most malicious nonchalance. In this privilege of minute examination of another woman's dress and personal make-up she is the subject of envy by her whole sex.

She has oftentimes, however, met with women even sharper than herself. The professional female smuggler is a being to be admired from a distance. She brings to bear all the virtues and vices of her sex to accomplish her purpose. She utilizes whatever there is womanly in herself and acquires all the strength of purpose and assurance of a man. The reputation of her sex for modesty, for unworliness and for fainting at the mere thought of suspicion; the peculiar formation of her dress and her personal beauty—what there may be of it—all of these count as capital in her unlawful business.

The devices made use of by these women have often elicited admiration for their ingenuity. Not only do they wear false teeth, great cavities in which are filled with valuable diamonds, but they bring over diamonds set in hollows of their natural teeth. A skillful detective must be able to recognize the difference between a boil or contusion and a sore made by the insertion of a precious stone beneath the skin. Mustard plasters have been torn off and hundreds of dollars' worth of laces revealed folded in a pamphlet-shaped sack of oiled silk.

Young Men who Sit on the Sidewalks.

We have our own private opinion of young men who daily seat themselves on the sidewalks of our town, gazing with all their might as if afraid Robinson's circus should parade the streets and they should lose an opportunity of seeing it. The world is in no great need of so many self-appointed guards to see that it goes on right, especially such as the class of which we speak. Still they sit there day after day as if anxiously on the lookout for some one whom they expect to pass, and seem to find fresh interest in the same throng each time it passes. The stately, well-to-do man hurrying along to his commercial pursuits, the poor laborer going home after the day's work is over, with his scanty supply of provisions from the market, the richly dressed lady, engaged in the delightfully fatiguing task of shopping, the child beggar tottering along with a cry for alms, are alike objects of the penetrating gaze of these street-loungers, whose sole aim in life seems to be to stare other people out of countenance, expending their energies on nothing unless it be to puff away vigorously at a ten cent cigar.

Young men of this class are not only a nuisance to working people, but actually lower themselves in the social as well as the moral scale. Nothing is more embarrassing to a modest female than to walk along the streets with a dozen or more pairs of eyes riveted on her. Besides, the influence which they exert over their younger brothers, is more or less demoralizing. They seem so happy, this do-nothing class, that they are apt to create a discontent in the hearts of those who are compelled to work for a living. Idleness, if habitual, soon becomes a part of their nature, and growing upon them, renders them unfit for the duties of life.

Young men, go to work. If fortune has rendered it unnecessary for you to earn your own livelihood, don't become stumbling blocks to those who are less favored. At least don't station yourselves on the sidewalks unless you have some object in view. The great laws of the universe do not require that you shall gravitate toward that point in order to keep the world in motion, and the pavements of our streets will keep their places just as well without your weight as with it.

How They Pull Teeth in Japan.

Those wonderful islands in the North Pacific that make up the empire of Japan are full of interest to Americans. They form a rich and beautiful country of hills and valley and vegetation; and among the people there are plenty of bright eyes and ready wits and nimble fingers. But the Japanese are what we call "a great way behind the age." They have been slow to learn new inventions because they have thought themselves wiser than the rest of the world, and have kept the art of the world shut out of their empire.

These singular people, who carve and design so cleverly, are very ignorant of medicine and surgery. Like other people, they have many aches and pains; and, as every body knows, one of the most torturing pains is an aching tooth. These poor creatures in Japan, like all the world beside, now and then want a tooth pulled; and their only contrivances for this are a wooden mallet and a stick. The professor of dentistry instead of sitting in his office with a stock of mysterious and frightful instruments, goes traveling over the country, carrying a box covered with brass ornaments, and containing some little mallets and wedges. When he meets with a person who wishes to part with an aching tooth, the wedges are pressed in between the tooth and gum, and are then forced down with the mallet, until, by hammering and prying, the tooth is made so loose that it can be pulled out with the finger. The poor patient suffers very much. Sometimes pieces of the jaw are broken away with the teeth, and it is said the patient dies from the wound.

And yet these singular people, so intelligent in some things, so stupid in others, make very beautiful artificial teeth, even complete sets, carved from marine ivory, and mounted on hard gourd-shell. They are made to fit the mouth very perfectly, and are kept in place by atmospheric pressure, very much as with us. The invention, however, is their own, and has been one of their arts for many generations. These teeth are not what we call expensive, a complete upper set costing only about one dollar and a half.

Magnesium

BY JAS. P. DUFFY.

Magnesium is a lustrous, shining metal, having an appearance similar to silver, and possesses properties peculiar to itself, and by which its presence is known. If a piece be immersed in almost any acid it will dissolve very readily, and at the same time give out hydrogen. If it be brought to a low red heat it will melt, and can then be readily distilled, if the heat be continued. In damp atmospheres it becomes coated with a film of magnesium hydrate; but dry air does not affect it. If a piece be dipped in very hot water, the formation of magnesium oxide will immediately take place, hydrogen being at the same time given forth.

On account of the brilliancy with which it burns in the air, and the beautiful bluish-white light which it at the same time gives out, it is considerably utilized by photographers in illuminating dark and secluded places of which views are taken. It is also sometimes used by them in cloudy weather as a substitute for daylight. It is often for this purpose pressed into wire, and, sometimes, ribbons.

Magnesium forms the base of the well-known, and somewhat abundant, earth magnesia. It is obtained in the form of a white powder by burning magnesium in the air, as follows:

Roll four or five inches of thin magnesium wire around a small pencil, in the form of a coil; now take out the pencil and place a knitting-needle in its stead. Hold the needle horizontally and apply a light to the end of the wire; it will burn brightly and leave the magnesia in the form of a white powder clinging to the needle, and shaping an imperfect coil.

There are but few combinations of magnesia with the other elements, and these are most used for medicinal purposes. The principal one is the sulphate, commonly called Epsom salts, which are made from various minerals containing magnesium. The name is taken from the town of Epsom, England, in the wells near which it is found.

People with Double-Barreled Faces.

I was once sitting in a cool underground saloon at Leipsic, while without people were ready to die from the heat, when a new guest entered and took a seat opposite me. The sweat rolled in great drops down his face, and he was kept busy with his handkerchief, till at length he found relief in the exclamation, "Fearfully hot!" I watched him attentively as he called for a cool drink, for I expected every moment that he would fall from his chair in a fit of apoplexy. The man must have noticed that I was observing him, for he turned toward me suddenly, saying: "I am a curious sort of a person, am I not?" "Why?" I asked. "Because I perspire only on the right side." And so it was; the right cheek and the right half of his forehead were as hot as fire, while the left side of his face bore not a trace of perspiration. I had never seen the like, and in my astonishment was about to enter into conversation with him regarding this physiological curiosity, when his neighbor on the left broke in with the remark, "Then we are the opposites and counterparts of each other, for I perspire only on the left side." This, too, was the fact. So the pair took seats opposite to each other, and shook hands like two men who had just found each other was his other half.

"Well! this makes an end of natural history," exclaimed another guest, who had hitherto quietly gazed on this strange performance as though it were a play; and every one that had overheard what was said came to this novel wonder. "This makes an end of natural history!" This expression excited me to laughter, and involuntarily I exclaimed, "No, sir, this is just the beginning of natural history; for nature has many strange caprices even as regards her symmetry." I then mentioned the case of a man I had known in my boyhood, who, Janus-like, had two totally different faces—on one side laughing, on the other crying. Naturally I dreaded this strange double face, with its one side smooth, plump and comely, like a girl's cheek, while the other side was all scarred by small-pox. This side of the face denoted churlishness; while the other side wore a smile, this boded mischief. In this instance disease had been unsymmetrical.

A Trip to the Hermitage.

BY B. G. BRAZLETON.

We left Mount Juliet, a small village on the Tennessee and Pacific Railroad, eighteen miles from Nashville and fourteen from Lebanon, May 23d, 1876, for the purpose of visiting the Hermitage. We reached the Nashville and Lebanon Turnpike about two miles north; turning down the pike westward we soon pass through the little village of Green Hill; next, after traveling a few miles further, we passed down a long hollow where we found ourselves in a little village called Scott's Hollow; passing through this little hamlet, we still journey on our way westward through a nice farming country, until soon we were driving along by the side of an old fence about seven rails high, much overgrown by bushes and briars. I was informed by my company that this was the farm and near by the residence once owned by him who protected our land from the scalping-knife of the savage Indians of the West, and drove Britain's braves from the shores of Louisiana.

We left the pike and traveled a short distance down to the house, where we were met by an old negro man, whose name is Alfred, and his wife, Gracy, both once the property of President Jackson. These negroes informed me that visitors were not allowed to enter the house on Sunday, but anything outside of the building that we wished to see they would gladly show us. This was a little disappointing to us, for we wanted to see the relics and presents of Old Hickory; but we could not stop on this, and so we decided to view the tomb, which is in the southeast corner of the garden. We entered and passed through several nice walks, adorned on each side by beautiful flowers. Gracy led the way until we came to where the noble remains were deposited. We learned that Jackson had this tomb erected long before his death; his wife dying first, was buried in the ground; after the tomb was erected she was taken up and placed in the vault prepared for her, which is in the north side of the tomb; in the south side lies the remains of the hero of New Orleans. Near by, and south of the tomb, in the ground, lie the remains of Andrew Jackson, Jr., his two small children, Captain Jackson, his son, who died during the rebellion, and Mr. Earl, the general's architect. Around this residence of the dead are beautiful trees and rich flowers, which send forth their sweet odors to the many who come to gaze on this silent city.

Reflecting on the past history of this great man, and letting the mind fly back in the past ages of the world when Alexander styled himself a god of earth; when Cæsar became ruler of three hundred nations, and Bonaparte thought himself proof against Arabian sands, Polar snows or Russian foes, and the generations after generations of the human race that have passed away, the brevity of human existence and the insignificance of individual influence becomes apparent. True, there are instances of men whose names and actions are still quoted for their power and influence in their lives, but to each of these are millions who lived and died, forgotten centuries ago, or whose names now live only upon a crumbling tombstone.

Each one filled for a time his niche in the world, performed his portion of labor, felt his share of pain and pleasure, and then passed away to the grave that waits for all. Only a short time, and the end will come to us, as it has come to our predecessors. Only a little while, and the throbbing heart will be still, the busy brain will cease to plan, and the hand will be passive. Only a short span of pain and pleasure, and the coffin-lid will close above us. Then might one ask—what is life?

The question was well answered by the poet, who compared life to

"A gulf of troubled waters—where the soul
Like a vex'd bark, is tossed upon the waves
Of pain and pleasure by the wavering breath
Of passion."

We left the tomb and proceeded to take a general view of the garden. We found that it was laid by walks into squares, and planted in strawberries, peas, and a few other vegetables. On either side of the walks are planted small trees and rose bushes of various kinds, bearing most beautiful flowers; everything seemed to have been cultivated by a skillful hand. We learned that Alfred's grandson was the gardener. We left the garden, passed out into the yard, where we met Alfred ready to give any information we wished. I began to

question him, but soon found that he knew better what would satisfy my mind than I did myself. He said he had been born and raised here, was seventy-two years old; his wife—who perhaps is as old as he, was bought by Jackson in Washington City, while he was President, and has been living on this place ever since—said she wished to spend the remainder of her life here. Alfred said he assisted in putting up the building here, was present when the much-loved Lafayette came to visit and dine with his once loved master; he saw him conveyed from the landing in the general's large carriage, drawn by Jackson's four big grey horses. When the carriage arrived at the yard-gate, a band was ready, which marched the friend of our nation through two files of soldiers to the mansion, where he was received by the family and numbers of ladies and farmers from the neighborhood, whom Mrs. Jackson had invited to partake of the entertainment she had prepared for General Lafayette.

Lafayette seems to have enjoyed his visit finely, but his secretary, Mr. Levasseur, was astonished at the simplicity of General Jackson's building. After hearing what the negro had to say about Lafayette's visit, we went around on the north side of the house; there we saw the old ice-house. Passing out of the yard, on our left we saw two brick houses, one was used for negroes to live in, the other was the general's carriage house; the tops of both are off—were blown off by a storm just after the rebellion. On our right is the general's first office, a small frame building, one story high; behind it stands the first old school that was ever built near this place, moved here perhaps for a negro cabin, and it is now fast decaying. About two hundred yards northeast still stands the old houses first occupied by General Jackson. Oh, would not Lafayette's secretary have wondered if he had visited President Jackson when he occupied these old log cabins? But we must know that greatness does not depend on the houses that we first inhabited.

Distinguished men of all ages and countries, as a rule, are men who have struggled to eminence from conditions of positive poverty. After gazing for a short time on these old, though noble cabins—consisting of two one-story houses—one consists of two rooms, and was formerly two-stories high; one story has been taken off for a negro cabin, the other is a small house, and was used by Jackson for a kitchen—we went about one hundred yards west to see Jackson's big spring and milk house. The stream is strong, the water boils up and runs immediately under a stone house about ten feet square, thence out and down through the old grass lot. Looking a few hundred yards north from the spring, we beheld the old stables where Jackson kept his race stock; east of these, now in a nice field, were his race tracks. A cloud was rising in the west which threatened rain, compelling us to return to the mansion for shelter. We went on the piazza where were two old benches; one in particular we learned was occupied a great deal by President Jackson; this one of course we chose for a seat, and while sitting here we were informed that near the window at our backs was where the general breathed his last. This house is now occupied by Colonel Jackson, his mother, and her sister, the widow Adams.

The principal trees in the yard are cedars, which are set in rows north and south, and planted by the widow Jackson; they are now about twenty-five feet high.

On the east, north and west, lying around the house, and belonging to the Hermitage, are old fields, which look as if they were worn out, though they are still cultivated. On the south side the land is thickly timbered and level; on the east and north are fine farms as far as the eye can see; but the greatest view is to the west, where one can see far above the timber in Cumberland River bottom to the high hills beyond the river near Edgfield. We learned that the general's nice farm of two hundred acres lay one mile southwest. The rain having ceased, and the bright orb of day shed forth its bright rays, which showed that night was drawing near, we entered our buggy and drove for home, well satisfied with our visit.

Thus a certain wise man replied to one who said:—"Such and such thoughts have come into my mind," by saying, "Let them go again." And another wise oracle said:—"Thou canst not prevent birds from flying above thy head, but thou canst prevent their building their nests in thy hair."

Hydrochloric Acid.

BY JAS. P. DUFFY.

Hydrochloric acid, sometimes called muriatic or sea-salt acid, is a liquid which has been long known to chemists, and is at present a valuable article of commerce, on account of its frequent use in the arts. It is manufactured by mixing equal parts of sodium chloride, common and sulphuric acid, in large iron cylinders, which are then subjected to an intense heat. The reaction which takes place furnishes the hydrochloric acid in the form of a gas, which is absorbed by water contained in stone-ware bottles connected with the cylinders. If the water be heated, the gas may be obtained pure, and possessing strongly characteristic properties, one of which is that it is not combustible, nor will it support combustion. It is also strongly acid in taste, and provokes violent coughing, and is wholly irrespirable. It is a little heavier than the air we breathe, is very soluble in water, in which state it is generally sold, and mostly always used.

The operations and processes in which hydrochloric acid is used are very numerous. Of them, the most important, is of a solvent (in connection with nitric acid) of gold, platinum and other metals, by which their chlorides are produced. To perform this operation, place a small piece of genuine gold leaf on a vessel and pour over it some hydrochloric acid; put some gold leaf on a second vessel, and pour over it a little fuming nitric acid. The gold will remain undissolved in the vessels, and could be left there for an indefinite length of time without undergoing any change whatever. But, if the contents of both vessels be brought together, the gold leaf almost immediately dissolves, forming what is known as *chloride of gold*, a chemical substance much used by metallurgists.

When the two acids, above noted, are brought together for the above purpose, they are mixed in the proportion of two parts of hydrochloric acid to one part of nitric acid, both being concentrated as highly as possible. The mixture is called *Aqua regia*, (royal water).

Hydrochloric acid is also used in making chlorine, the operation having already been described in these columns; it is also made use of in the manufacture of chloride of lime, and of gelatine, and altogether, it is one of the most useful acids the chemist handles.

"Annie Laurie."

"If you want to hear 'Annie Laurie' sung, come to my house to-night," said a man to his friend. "We have a love-lorn fellow in the village, who was sadly wrecked by the refusal of a girl whom he had been paying attention to for a year or more. It is seldom he will lemp the song, but when he does, I tell you he draws ears from eyes unused to weeping."

A small select company had assembled in a pleasant parlor, and were gaily chatting and laughing when a tall young man entered, whose peculiar face and air instantly arrested attention. He was very pale, with that clear, vivid complexion which dark-haired consumptives so often have. His locks were as black as jet, and hung profusely upon a square white collar. His eyes were very large and spiritual, and his brow such an one as a poet should have. But for a certain wandering look, a casual observer would have pronounced him a man of uncommon intellectual powers. The words "poor fellow," and "how sad he looks," went the rounds, as he came forward, bowed to the company, and took his seat. One or two thoughtless girls laughed as they whispered that he was "love-cracked"—but the rest treated him with a respectful deference.

It was late in the evening, when singing was proposed, and to ask him to sing "Annie Laurie" was a task of uncommon delicacy. One song after another was sung, and at last that one was named. At its mention the young man grew deadly pale, but did not speak; he seemed instantly to be lost in reverie.

"The name of the girl who treated him so badly was Annie," said a lady, whispering to the new guest—"but oh! I wish he would sing it; nobody else can do it justice."

"No one dares sing 'Annie Laurie' before you, Charles," said an elderly lady; "would it me too much for me to ask you to favor the company with it?" she added timidly.

He did not reply for a moment—his lips quivered a little, and then looking up as if he saw a spiritual presence, he began. Every sound was hushed—it seemed as if his voice was the voice of an angel. The tones vibrated through nerve, and pulse and heart, and made one shiver with the pathos of his feeling; never was heard melody in a human voice like that—so plaintive, so soulful—so tender and earnest!

He sat with his head thrown back, his eyes half closed—the locks of dark hair glistening against his pale temples, his fine throat swelling with the rich tones, his hands lightly folded before him; and as he sang—

"And 'twas there that Annie Laurie
Gave me her promise true—"

It seemed as if he shook from head to foot with emotion. Many a lip trembled—and there was no jesting, no laughing; but instead, tears in more than one eye.

And on he sung, and on, holding every one in wrapt attention, till he came to the last verse—

"Like dew on the gowan lying
Is the fa' of her fairy feet—
And like winds in summer sighing
Her voice is low and sweet,
Her voice is low and sweet—
And she's a' the world to me—"

He paused before he added—

"And for bonnie Annie Laurie,
I'll lay me down and die."

There was a long and solemn pause. The black locks seemed to grow blacker—the white temples whiter—almost imperceptibly the head kept falling back—the eyes were close shut. One glanced at another—all seemed awe-struck—till the same person who had urged him to sing, laid her hand gently on his shoulder, saying—

"Charles, Charles!"

Then came a hush—a thrill of horror crept through every frame—the poor tried heart had ceased to beat—Charles, the love-betrayed, was dead.

Nature.

From the mighty worlds swinging in space, to the animalcule in water which cannot be seen by the naked eye, Nature is a grand and wonderful study.

What an example of Nature's power is the active volcano and the earthquake. Who would think that air, so harmless and pleasant when mild breezes are blowing, could, under certain circumstances, become so destructive an element as it is in the hurricane and cyclone, when, sometimes, thousands of people and millions of dollars worth of property are destroyed in a few moments.

What changes of season in the brief space of a year. Spring comes. The brightening sod, the opening buds and blossoming trees, the awakening insect life, the returning birds, and the placing in the ground of seed for a future crop by the farmer, all tell us that the season of promise is here.

In Summer nearly everything seems to possess life and animation. You can see the birds skimming over the fields, or hear their voices in the trees and hedges the whole day long. All nature combines to make the landscape beautiful.

Then comes Autumn. The farmer is reaping the reward for his labor in the Spring. The leaves are falling softly and steadily; the birds are flocking together for their yearly tour South.

The gloomy season of Winter approaches; Jack Frost and the Storm King reign. The lakes and rivers are covered with ice. The snow falls thickly, and old Boreas piles up the spotless drifts by the wayside; but after all his sternness, Winter has beauties equal to the other seasons.

Who can doubt the existence of a Creator, when, every way that our eyes turn, we can see His handiwork. Mankind has accomplished many things in the way of art, but we cannot make one thing without Nature's materials.

Think of the many planets revolving through space without getting out of their course and colliding; and of all that astronomers, geologists and naturalists have discovered. Ignorant or thoughtless must be the person who says and *thinks* that he believes that everything exists by chance; and often must the thinking mind exclaim: "How marvelous are Thy works, Oh, Lord God of Hosts!"

LARRY CUMMINGS.



A CHILD'S WORK.

BY ANGUS M. MACKAY.

"Would that I had work to do,
And such pleasant work as you!"

Quoth the maiden to the bee,

"In and out among the heather,
All the golden summer weather;
It is easy labor truly!"

Quoth the maiden to the bee,

"It is pleasant to the seeming
Of a wee maid, idly dreaming,
Every flower to visit duly,"

Quoth the bee,

"But the sweetest rose is but a dusty workshop unto me!

Work away with strong endeavor—

Leave your play,

Work away,

Summer will not last for ever!"

Quoth the bee.

"Teach me what to undertake,
Sweets from flowers I cannot make."

Quoth the maiden to the bee.

"What great work shall I be doing?
What contriving, what pursuing?
I will idle be no longer!"

Quoth the maiden to the bee.

But she only heard him droning,

And the song he was intoning,

Growing faint or growing stronger,

And its burden seemed to be—

"Though the sweetest rose is but a workshop unto me.

I must toil with strong endeavor;

Work away,

All the day,

Summer does not last for ever!"

Quoth the bee.

"Then she heard the sweetest singing
Of a lark above her, winging
Up the blue sky o'er the lea;
Pretty lark, the sun pursuing,
What great work shall I be doing?
For this idleness is folly!"

Quoth the maiden on the lea.

"Sing, be gay, enjoy the weather,
Like the wee lark o'er the heather;
Sing, and chase dull melancholy

From thy dear ones—copy me.

By a silver thread of music to my nest upon the lea

I am leathered; so endeavor

To be gay,

While you may,

Summer does not last for ever!"

Quoth the lark above the lea

"But I cannot always sing,
I would do some greater thing!"

Quoth the maiden on the lea.

"Then the blue-bells 'mong the heather

Bent their little heads together—

How they whisper to each other!"

Thought the maiden on the lea,

And they answered, bowing lowly,

"To be sweet, and pure, and holy

Is our way: there's not another

Half so lovely, all agree!

"For a gentle, winning childhood, is the fairest thing can be:

To be good make thy endeavor,

Childhood's hours

Are life's sweet flowers,

And childhood cannot last for ever,"

Quoth the bluebells on the lea.

A Man Worth Knowing.

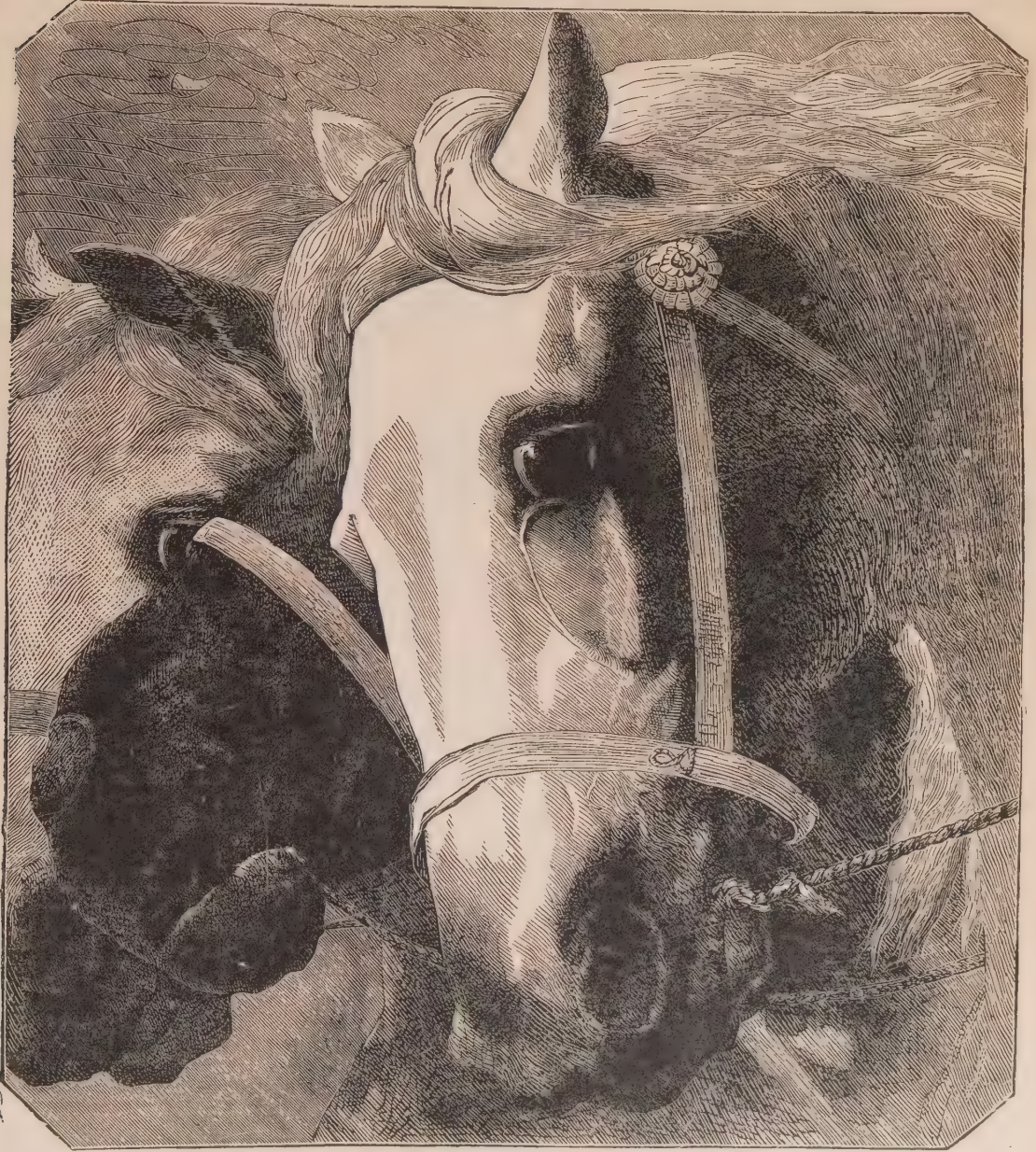
Sitting two places to the left of Chief Justice Waite, in the Court, sits Judge David Davis. Everything about the man betokens originality, rude strength, and positive convictions. His face is almost a typical Anglo-Saxon one. His features are not finely cut, nor is their expression intellectual; but, though coarse, they are harmonious, and there is a look of good humor, common sense, and careless, self-confident manhood in the whole countenance. There is a narrow frill of gray whiskers running round the Judge's face and under his chin, and the frosty color sets off his hale, ruddy complexion to advantage. His judicial robe conceals his figure to some extent, but it is plain that he is tall and powerfully built. He has an air of perfect fearlessness befitting one never cowed or broken by sickness or defeat. At times it almost amounts—*savete linguas*—to a swagger. In fine I should sum up the matter by saying that Judge Davis seems to be moulded of a piece of the same clay and kindled with a spark of the same spirit as the Chief Justice of the New York Court of Appeals. Every glance and movement suggest Sandford E. Church—as he was in 1872 before sickness touched him—bold, self-reliant, and hopeful. As a jurist, Judge Davis is careless of subtle distinctions or legal precedents and looks to broad, general principles and the equities involved in a case. He aims to do substantial justice always—sometimes doing it even at the expense of the law. He has all the legal knowledge that becomes a member of the highest court in the country, but he is more noted for his independence than for his legal scholarship.

But a few particular incidents will illustrate peculiarities of his character better than a volume of analysis. At Indianapolis, which is within his circuit, a lawyer named Ketchum was ready when his case was called, but his opponent was absent and had sent word that he couldn't arrive for an hour or two. Ketchum insisted upon proceeding at once. The Judge remonstrated in favor of the absent lawyer, but to no purpose. "Well," said he, finally, "if you insist upon going on, Mr. Ketchum, you have of course, the technical right to do so; but if I were you I wouldn't urge the matter. Over at Springfield, the other day, there was just such a case, and the lawyer would insist upon going on with the trial; and so I had to look after the interests of the other party myself—and, do you know, curiously enough, Mr. Ketchum, we beat him!" It is needless to add that Mr. Ketchum concluded to wait. A well-to-do farmer, who had fallen into bad company and bad courses, was convicted before him of having counterfeit United States notes in his possession with the intention of passing them. The Judge called him up, and before sentencing him asked if he had arranged his affairs in anticipation of his enforced absence. The culprit replied that conviction was a surprise to him, and nothing was in order, but that he could settle his business affairs in about ten days. As the criminal could find no one to go on his bail bond, the Judge allowed him to depart on his own recognizance, much to the amusement of the lawyers in the court, who laughed at the idea of the man being fool enough to come back again; but Mr. Davis insisted that the fellow had not "taken to the tall timber." His knowledge of human nature was justified, for at the appointed time the farmer returned, like Regulus, and the Judge sentenced him to the penitentiary. He was Abraham Lincoln's warm personal friend and one of his most active partisans in the convention that nominated him for the presidency. After Lincoln's death he acted as one of the administrators of his estate. He has lately been spoken of as being a candidate for the presidency.

HORSES AND THEIR MASTERS.

"Oh, I hope a kind master has bought them!
How quiet and patient they stand;
Yet ready to move at the bidding,
The touch of the gentlest hand."

These questions are of as much importance to horses as to human kind—their comfort and happiness greatly depend upon the character and disposition of the man who owns them. Naturally affectionate, they greatly enjoy being appreciated and caressed, and form strong attachments to persons and places—conceiving as strong an aversion to others.



"SOLD!"

Will their lot be to drag heavy wagons, or great lumbering stone laden drays; or to draw carts burdened with hay through green fields and sweet meadows? Will they be spoken to kindly and much made of—gently led to do what is required of them—provided with a comfortable stable, with plenty of good food and drink, or will their life be one of hard work, thwacks, kicks and abuse?

My own horses during nine months of the year are kept in the city—the stable being at some distance from the house, they are seldom visited. During the summer season they are taken to my place in the country, where the stable is daily visited by the different members of the family, who give them pats, kind words, and sometimes apples, bits of sugar and other choice delicacies. Although there has

three months in the year, they express the greatest delight on going back in the spring—whinnying and snorting when within sight of the spot and manifesting impatience to enter the stable; but there is no such gladness exhibited upon returning to the city stable, where they spend the greater part of the year, although everything is done for their comfort. They love the country home. Whether it is because of the increased attention they receive, or the pleasant, large, airy stable, I cannot say.

Horses are subject to many of the diseases that afflict humanity,—heart disease, asthma (known as the heaves), rheumatism, worms or bots, inflammation of the lungs, etc., are common among them, and the treatment required is much the same, with the exception of increased doses of medicine. Thank heaven, they have never been dosed with calomel!

The writer lost a fine mare last winter with inflammation of the lungs—a bright golden sorrel, beautifully formed creature, weighing about twelve hundred and fifty pounds. Her motions were like music, and none could behold her without admiration.

When a colt we bought and named her Lady Moscow, and for years she was a favorite tenderly cared for. Last winter we sent her into the country until spring should open. Perhaps she was not kept warm enough, or was exposed to draughts—at all events a cold settled on her lungs which brought her career to a close. I shall never forget the day she left us, with evident reluctance—her lofty head held low, as if foreseeing her fate.

Many of her peculiar ways and capers are now recalled to mind. She was a proud animal. Attach her in a heavy harness to an express wagon and she accepted the situation, exhibiting little spirit; but dressed in a light plated harness in a nice carriage, her head was raised, her neck was arched, her large eyes sparkled, and her style and motion were something beautiful to behold. I know no work of our Creator's hand more grandly noble than an intelligent, elegant horse.

Lady Moscow was mated with a great gray horse—a steady, powerful animal, as dignified as a deacon. Sometimes they were placed in a paddock together. Serenely the horse walked in—of course he was delighted to be allowed his freedom in an open field and expressed his pleasure by kicking up once or twice, but immediately remembering his dignity, commenced cropping the grass. The mare, always frolicsome, capered about him in graceful play, pretending to bite and kick, following him about, as he tried to avoid her attentions. Presently away she would go, running at a tremendous speed round and round the ten acre lot, until we feared she would injure herself. Then back to the horse, to browse by his side a few moments, and snuffing the air in the consciousness of her magnificent strength, away again like the wind.

She was exceedingly fond of this horse—invariably pawing and snorting when he was taken out, whinnying to him a gentle welcome on his return, and an immediate rubbing of noses took place upon his entering her adjoining stall, which he occupied.

By-and-by we mated the gray with a black horse, and Lady Moscow's jealousy was terribly aroused. When he was first brought into the stable, her ears were laid back, she tried to bite and kick the new comer, and continued to do so whenever an opportunity occurred. Blacky would look at her in a sort of inquiring deprecatory way, as if to say, "Why do you hate me?" but never was he treated in a more friendly manner, though they were inmates of the same stable off and on for several years. Once, being taken past a stall she occupied (too near) he received a kick in the breast from which he was several weeks in recovering.

The mare was not at all vicious—never exhibited an antipathy toward anything else, and was as pleasant as a May morning when old gray was by her side, but let poor Blacky appear and she expressed dislike in an instant.

Lady Moscow was a master hand at slipping a halter; and although carefully tied managed frequently to loosen herself. We had a garden filled with all

all sorts of nice vegetables. Several times she untied her halter, quietly walked out of the stable, strolled up the centre walk of the garden, nipped off an ear of corn on the way; crossed a side path and returned by another path to her stall, and the footprints indicated that the walk had been taken four or five times during the same night, without stepping on a bed, a hill of potatoes, or doing any damage whatever, with the exception of pilfering the corn.

We thought this proceeding a singular one, as she was ever ready for a good run, and was exceedingly fond of sweet corn, and might have revelled in both had she chosen to do so. The walks were simply cut in the soil forming a square.

At another time during the day she wandered to the front of the house unseen, and finding a little spot about twelve feet square, surrounded on three sides by a fence, she immediately took possession. The grass and clover were tender and sweet, and after a luxurious roll Lady Moscow was enjoying a feast indeed, when her hiding place was discovered, and it was thought best to return her ladyship to the stable. We had visitors, and three gentlemen walked promptly toward the spot. As the first one drew near, a pair of heels were raised about six inches from the ground and he stood still, amazed; as the next drew near, the heels were again raised toward him—not enough to hurt anybody, but simply as a warning to keep at a proper distance; then came the third—quick as thought gently up went the heels again in his direction, while the lovely creature never interrupted her delicious repast. The three men stood in a dilemma. Whenever either made the slightest advance, up flew the nimble heels toward that person—her body moving as required, back and forth in a semi-circle, to protect the entrance to her clover nook. Presently up came Mr. D., a stalwart man of six feet in height, who, looking disdainfully toward the three checkmated individuals, said, "What are you fooling about; why don't you go right up to her?" and suiting the action to the word he made a bold advance. The next moment found him scrambling up the piazza, the person climbing a tree, and the doctor hiding behind it, while peals of laughter issued from the open windows of the house. On Mr. D.'s determined venture the mare had wheeled round, reared her great self aloft and pawing the air with her forefeet, looked as if she were about to demolish somebody. This unlooked for maneuver served to scatter her would-be captors, and this being accomplished she resumed her grazing with wary eye that no one approach her unaware. As I came near with an apple in my hand, speaking soothingly, she however came at once, yielding herself a willing captive as I seized her forelock.

It was all play. She would have injured neither of the parties willingly; but took this method to enjoy for a time delightful freedom. I never think of this playful, knowing creature without a sigh of regret; but it were better to die than to be sold to an unfeeling, cruel master.

Good common sense in the master is appreciated by the horse. An intelligent, bright horse will soon learn whether his master is his equal or his inferior in the moral qualities which go to make up character. Not to know that horses have individual character and disposition as marked and varied as men, is to lack the first essential of being a good horseman. Not to recognize the possession of intellect by the horse, is erroneous. Talk of instinct! why, I have known horses who seemed, from their intelligence, better qualified to vote than many who exercise the right of suffrage. Then as to affection and fidelity, an average horse possesses more of both than the generality of gallants and flirts at the fashionable watering places.

As an instance of memory and affection in a horse, a gentleman relates the following incident:

"When I was a boy my father bought from a neighboring farmer a gray Galloway pony, which was very vicious to all with whom he came in contact except myself. The way in which I acquired so much power over him was by feeding him with bread, and showing him other acts of kindness.

"Some years afterward I left home, and when I returned to my father's house I found that 'Donald' had been sold, and that all trace of him had been lost for about seventeen years. At that period, being resident in a village in a neighboring county, I saw an old white horse in a cart, and thinking that it might be the same animal, I went up to him in the same way as I used to do in boyhood, and said 'Donald.' He immediately turned his head to me, laid it on my shoulder, pawed the ground, rubbed his nose upon my arm, and showed the greatest possible affection.

"The driver of the cart came out of a shop, and warned me to keep away from the horse or he would bite me. I moved up the street, when Donald became restive, wrenched the reins out of the lad's hands, followed me along the street, and it was not until after I entered a house that, after much difficulty, he was induced to move away."

This is a really wonderful act of memory on the part of the horse, and not at all a bad one on the part of the man; and the incident affords a direct proof that memory is a common possession of man and beast. That the man should recognize the animal which he loved in his boyhood was a tolerably fair ex-

ercise of memory; but that the horse should recognize the man is even more astonishing. From boyhood to manhood the lapse of seventeen years makes such changes in personal appearance that, as a rule, the man of thirty can scarcely be recognized even by those who knew him well as a boy of thirteen. Nor can the voice give any help in recognition, for the deep tones of the manly voice are as unlike the shrill sounds of a boy's "treble pipe" as is the bearded face of the man to the smooth cheek of the boy.

Dress also makes a great difference in the appearance of a human being; and when we consider that the dress of a man is quite unlike that of a boy, we must appreciate the strength of memory which enables the horse to recognize his friend in spite of so many alterations.

To the intellect and affections of this magnificent animal you must address yourself, if you desire to secure his most valuable and beautiful performances. If an accident occurs to harness or carriage and the driver's voice betrays fright, the horse will instantly discover it, and become frightened as well; if the driver's manners and tones are calm and firm, the horse is reassured and passive.

If in grooming, harnessing and driving the average horse, kindness and a little petting are habitual, the horse soon becomes attached to his master and stable, and will exhibit his affection by following the master's call or returning home from a distance when turned loose in the road; he will come up and kiss the hand which feeds him, look love from his great generous eyes into the face of his master, and dance hornpipes, circling about on the lawn with a lithe and graceful movement that no Jack-tar can imitate.

I once knew a horse which was owned by a lawyer, and driven by him only in the warm season. He fed him generously, and was not cruel, though harsh in manners and voice. During the winter a quiet old gentleman kept the horse, using him only to draw light loads of wood from a neighboring forest. He did not feed him so high as the lawyer, although he gave him plenty of hay. Yet his kindness and tenderness were so uniform, that the animal became greatly attached to him, and would resort to many tricks to get away from his owner in the summer time and run away to the stable of his old friend. His pleasure at the old man's caresses was manifest when he arrived before his door, panting from his race thither.

Horses are sometimes subjects of monomania:

In 1806, during the campaign of Ansterlitz, a Piedmontese officer possessed a beautiful, and, in other respects, a serviceable mare, but which one peculiarity rendered, at times, very dangerous for the saddle. She had a decided aversion to paper, which she immediately recognised the moment she saw it, and even in the dark, if one or two leaves were rubbed together. The effect produced by the sight or sound of it was so prompt and so violent, that in many cases she unhorsed her rider; and in one case, his foot being entangled in the stirrup, she dragged him a considerable way over a stony road. In other respects this mare had not the slightest fear of objects that would terrify most horses. She regarded not the music of the band, the whistling of the balls, the roaring of the cannon, the fire of the bivouac, or the glittering of arms. The confusion and noise of an engagement made no impression upon her; the sight of no other white object affected her; no other sound was regarded; the view or the rustling of paper alone roused her to madness. All possible means were employed to cure her of this extraordinary and dangerous aberration, but without success; and her master was at length compelled to sell her, for his life was in continual danger. A mare belonged to the French Guard-Royal from 1816 to 1821. She was perfectly manageable, and betrayed no antipathy to the human being, nor to other animals, nor to horses, except they were of a light gray color; but the moment she saw a gray horse, she rushed upon it, and attacked it with greatest fury. It was the same at all times and every where. She was all that could be wished on the parade, on the route, in the ranks, in action, and in the stable; but such was her hatred towards gray or white horses that it was dangerous to place them in the same stable with her, at whatever distance. If she once caught a glimpse of one; whether horse or mare, she rested not until she had thrown her rider, or broken her halter, and then she rushed on it with the greatest fury, and bit it in a thousand places. She generally, however, seized the animal by the head or the throat, and held it so fast that she would suffocate it, if it were not promptly released from her bite. As she grew old, the mania was not quite removed, but it was somewhat weakened. No other body of a white color appeared to make the least impression on her. A mare belonging to the Fifth squadron of French hussars, feared, on the contrary, all white inanimate objects—such as white mantles, coats, or even the sleeves of shirts and chemises too much displayed, and particularly white plumes. When any of these white bodies, especially in motion, were first perceived, if they were of any magnitude, and their motion was rapid, she was in a dreadful fright and strove to escape; but if they were of no great size and moved more gently, she rushed furiously upon them, struck at them with her forefeet and endeavored to tear them with her teeth. No other colors produced the slightest effect upon her, nor did the appearance, however sudden, of white horses, or dogs of the same color; but if a white plume waved, or a white sheet of paper floated by her, her fear or rage was ungovernable. These three cases of singular and peculiar aversion possess all the characteristics of true monomania.

How to Teach a Child Honesty.

I am not sure whether I did right or wrong. I am sure that I meant right. It was on this wise: Believing implicitly that the bending of little human twigs should be accomplished during the early stages of their growth, I concluded to commence on Vieve. My intention was to give her a lesson in firmness. Accordingly I filled a box with chestnuts, and placed them within her reach, saying, "Now, Vieve, dear, you must not touch them without my permission."

"Well, then, I dess I'll not," was the reply, while the brown-eyed three-year-old gazed wistfully toward the sweet temptation. I gave her six or eight.

"In my dear little potit, fank'oo!"

I went to my work, and labored with all the cheerfulness of an inventor who is pretty sure his machine is a success.

During the afternoon it occurred to my mind that those eight chestnuts were lasting a remarkable time. Assuming my blandest tone for the occasion, I asked:

"Vieve, have you eaten all your chestnuts?"

"No, I fink not."

"Come here, darling. Where do you get so many?"

"Oh, I dits 'em out of my potit."

"Well, there are more than I gave you at first," I said, as I examined the dainty receptacle. "O! Vieve, have you been disobeying me, and getting more out of that box?"

"I 'spects p'raps I have."

"But are you sure?"

"Yes, I's pitty sure."

"Oh, dear Vieve," I cried with the feelings of one who discovers his invention to be a failure, "this makes poor mamma feel so sad. I do not like to punish you, but what must I do? I must have my little girl obey me. Oh! what shall I do?"

The small sinner looked reflective.

"Well, Mamma," she presently said, in solemn tones, "I dess 'oo had better pray."

Believing her suggestion a wise one, embodying about all the wisdom of the entire affair, I acted upon it. Returning to my occupation after our session had adjourned, the first thing that caught my attention was a scrap of old newspaper, containing this sentence:

"He, who through intention or neglect, throws before another a temptation is, if he be overcome, equally guilty."

I put away the box of chestnuts, and am waiting further light.

A Frog Barometer.

Out at the Lafayette Park police station, St. Louis, they have a weather prophet which eclipses Tice and all the barometers in the neighborhood. It is a frog of the genus *Hyla*, more familiar to the general reader as the tree-toad. Hunt, the Superintendent of the Park, was mildly abusing his barometer one day for misleading him, when the officer on the beat, an old frontiersman, said he would show him a trick. He took a glass jar and threw into it some stones and a couple of inches of water. Then he whittled out a little wooden ladder and put it in the jar. After some lively scrambling a tree toad was caught, chucked in and a tin top screwed on. The weather indicator was complete. When it is going to be fair weather that toad roosts on the top round of the ladder, solemnly blinking the hours away. From twelve to fifteen hours before a change to bad weather, "the general," as they call him, begins to climb down, and hours before a storm sets in he squats himself on a stone, and, with his head just above the surface of the water peers aloft at the coming storm.

Let the weather be changeable and "shifting," as "Old Prob." says, and the toad goes up and down that ladder like a scared middy. When it is fair and the toad roosts aloft his skin is of a light grayish green. When the change comes the skin turns black as the toad goes down the ladder, becoming a jet, shining black by the time he reaches the bottom. The fame of the toad has spread through Lafayette Park neighborhood.

THE best and sweetest flowers of Paradise God gives to his people when they are upon their knees. Prayer is the gate of heaven or key to let us into Paradise.

SCENES IN THE POLAR REGIONS;

OR,

Life Among the Arctic Explorers.

BY JASPER T. JENNINGS.

Every section of the globe furnishes a world of thought and speculation for the contemplative mind of the naturalist. To the student of nature there is not an uninteresting spot on earth. Man was created with a desire for discovery; and within the secret avenues of every thinking brain there is a constant longing to know more. To behold the natural beauties of creation, the wonders and sublimities that bear upon their faces imposing evidence of the almighty power of God, and he is always reaching out, and striving to enter new fields of observation, where new and hitherto unheard of rays of truth and knowledge blaze forth in effulgence, to illumine his understanding and enlighten the world.

If man was always perfectly contented with his lot and condition, he would always remain the same; the progressive spirit that rules the age arouses his ambition and leads him on through patient toil and investigation, to higher and nobler achievements. Hence, even a discontented mind, though it has ruined thousands, by leading them in pursuit of objects they never attained, is, after all, the potent lever that is raising the world higher and higher up the sublime hill of science every day.

It was the discontented mind of James Watt that built the steam engine; and of George Stephenson that improved and applied it to the railway. They were not satisfied with what their predecessors had done; they believed they could make an improvement; they studied long and earnestly; they reached ahead; they took the step, and the world knows the result. It was the discontented mind of Christopher Columbus that led him on to the discovery of the New World. After mature deliberation, and years of intense thought and study, he rejected the theories of the learned men of his time and sailed away to establish the enduring truth of his own. It was the discontented minds of Ross, and Franklin, and Kane, that led them to defy the storms and severities of the Arctic winter, and face the dangers of the frozen Polar seas in their attempt of the north-west passage and exploration of the Northern regions.

Tropical explorations have revealed to us the tangled jungles and immense masses of luxuriant vegetation, the dark visaged savage and indolent native; the hissing serpent and loathsome reptile, and the fierce and blood-thirsty beasts of prey, that prowl through the infested forests of the Torrid zone. Explorations in the Polar regions have revealed to us scenes in strange and astonishing contrast. And yet, the hand of God is displayed in the Arctic regions fully as much as it is in the Tropics. Animated life in these regions, are by nature's wise provision, fitted and prepared for the rigorous climate, by warm coats of fur; and they could not exist for an hour beneath the burning sun of the equator. Animals from the tropical regions transported hither, with only their thin covering of coarse hair, would perish at once, and be frozen to an adamant mass in less than a single day. Animals are not as numerous or ferocious here as they are in warm climates, but the reindeer, seal, walrus, white bear, etc., abound, and the sable and marten leap through the forests with all the vivacity of the weasel and nimble squirrel of the temperate zone.

About the first of February the edge of the sun is discovered, peering above the horizon at some low point between rugged hills of ice and rock. A few minutes only is it visible, and then, having passed across the narrow valley, is hid from view behind the intervening hill. For nearly twenty-four hours it sails below the horizon, and then it appears a little higher than before, where it is a little farther across the valley, and the day is a little longer. Gradually it rises higher and higher, day by day, like the thread to a screw, and the days become an hour long, then two, four, eight, fifteen, twenty, and then the sun only dips below the horizon for a few minutes, where some tall dark mountain leans against it, and at last it rises above all, and rides majestically round and round, and for weeks there is only one continual day. Having reached its height, it descends in the same manner that it arose, until it is only seen skimming for a few minutes along the horizon, over some low valley, away to the south, and about the last of November it entirely disappears and the long Arctic night commences. For weary months the dark night is unbroken by a single ray of sunlight; and during this time, when the sky is not overcast with clouds, the moon and stars shine perpetual. The cold is intense, and pass along the heavens, and fit and glimmer overhead, combining with the pale light of the moon to cast their wandering and massive icebergs, giving an apparent slow ghostly motion to all, and inspiring the Arctic navigator with strange emotion, akin to dread and terror.

Among all the different expeditions of Arctic navigators, perhaps none were more fraught with peril and adventure than that of Sir John Franklin. In company with several well-educated gentlemen, he left Gravesend, England, on the 23d of May, 1819, and on the 30th of August following, reached York Factory, the principal depot of the Hudson's Bay Company. Having made all necessary preparations, the expedition started on their long river journey into the interior wilderness, on the 9th of

September. For forty-four days they continued on their eventful journey, occasionally meeting with wolves and other northern animals, and on the 23d of October, they reached Cumberland House, having traveled 690 miles. On the 18th of January, 1820, he set out for Fort Chepewyan, in the Athabasca region, 857 miles beyond. The whole distance lay through a wild barren wilderness, almost wholly uninhabited, desolate, and inhospitable. The snow lay deep upon the ground, and the cold wintry blasts swept over the plains and bleak hillsides with unresisting fury. Tracts of pine forest which they passed now and then, roared and wailed in the grasp of the heavy gale; the wind whistled, and the snow sifted down upon them so fast that it appeared almost dark and foggy in the thick woods, reminding them at times of the Alpine storms around the great St. Bernard, and recalling to their minds the old stories they had heard and read about the saving of lost and perishing travelers by the pious monks of the convent and their noble dogs. With the passage of the storm the sun would come forth, but its rays were cold and feeble, particles of frost filled the air, rendering the sky of a dull, hazy color, and great fleecy clouds flew swiftly overhead in the roaring gale. All day long the little party of hardy explorers would toil through the snow, part of the time on foot and part of the time seated in their sledges, wrapped in furs, and drawn briskly over the smooth surface by their faithful dogs. At night a warm or sheltered place was selected for a camp, usually in the thick forest, the snow was scraped from the ground, wood collected and a fire built, a pile of pine branches cut and placed before it for a bed, the dogs were unharnessed from the sledges, supper cooked, the provisions hung on the trees near by, where the wolves could not reach them, and wrapping themselves in their furs and blankets they threw themselves upon their rude couch and prepared to pass the night comfortably, even in the severest weather. In a little more than two months the journey was completed, and they arrived at Fort Chepewyan.

In the spring active preparations were commenced for the advance of the expedition, and on the 18th of July they set forth for Fort Providence, which they reached in eleven days. On the 2d of August they set out for the mouth of the Coppermine river; but after eighteen days of hard traveling they were obliged to establish their winter quarters at Fort Enterprise. Here they passed the long cold winter, the ground covered deep with the icy mantle and the branches of the trees loaded and bent with snow. It was feared that their provisions and ammunition would be exhausted before the long winter passed, unless some one returned for more. Mr. Back, one of the most enterprising members of the expedition, drew on his snow-shoes, and bidding his companions be of good cheer, set out for Fort Chepewyan. He was gone nearly five months, and his friends long believed him lost. No wonder his return was hailed with joy, for he was looked upon almost as one resurrected from the grave. He had passed across the Great Slave Lake, had traveled over 1100 miles in snow-shoes, and had passed the cold wintry nights in the woods, with no other covering than his blanket and deer-skin. His companions gathered about him, eager to hear his story, and many weary nights he entertained them by recounting the perils and adventures of the lonely journey.

It was the 14th of June, 1821, before the expedition was again on the move. It was a bright, balmy morning as they set forth down the Coppermine, and the grass-covered banks and slopes were lined with herds of deer, musk-oxen, and wolves. At the end of a month's journey they beheld from the summit of a gentle eminence the sparkling waters of the open Polar Sea. On the 21st of July, the party embarked in two birch-bark canoes, with provisions for fifteen days. Coasting along the shore, where they could procure game or encamp on the approach of bad weather, they proceeded eastward 550 miles, when the approach of winter admonished them to return. It was the 16th of August. Naming the place Turnagain Point, they took their last look of their farthest exploration, and turned their faces upon the homeward course.

The sufferings and hardships they had experienced was as nothing when compared to the trials that now lay before them. Proceeding up Hood's River they endeavored to shorten their route to Fort Enterprise. Long lines of black ledges lined the stream, and a little farther up, the entire river poured over an immense precipice of rock, 250 feet in height, with a roar that seemed to jar the ground. Above this cataract, now known as the Wilberforce Falls, the stream was smaller, rough and unfit for navigation, and the explorers were obliged to leave their canoes and baggage behind, and strike out on foot across the barren wilderness and desolation. It was now the 31st of August. They had proceeded but a short distance when a heavy snow storm set in, and winter appeared commencing in earnest. They had no means of making a fire, and the weather was so extremely cold they were forced to remain wrapped up in their rude beds for two whole days. At length the weather moderated somewhat, though it was still rough and boisterous, and the little party drew their furs closely around them and plodded slowly on through the deep snow and deeper drifts.

A new terror now stared them in the face. Their provisions gave out, and starvation seemed already whispering a doleful dirge in their ears. Hardly a tree or shrub appeared to gladden the eye or furnish material for building a fire. Cold and desolate marshes, and barren rock-bound hillsides, along which the wind rushed impetuously, bearing clouds of light snow on its raging wings and hurling it into ten thousand drifts, met the gaze in every direction. Almost in despair they toiled on more dead than alive.

On the 26th of September they reached the Coppermine river. The stream was about 130 yards wide, and the farthest search revealed nothing but a few rude willows with which to construct a raft to cross. For some time they were busy binding the faggots together, and when they launched their intended float it sank nearly to the water's edge, and without oars or poles, in an unfavorable wind, the raft was useless. Dr. Richardson, with almost superhuman energy, tied a line around his body, and handing it to his friends, plunged boldly into the icy current and endeavored to swim across. If he could gain the opposite shore the frail willow craft could be hauled back and forth and the crossing might be accomplished. But ere he had reached the shore his limbs became numb and powerless, and he sank helpless in the cold water, paralyzed in the congealing tide. His comrades hauled him quickly ashore, rolled him up in warm blankets and placed him before a slow willow fire, and at length he slowly recovered. His effort had been a failure, and had nearly cost him his life.

His sufferings had become terrible in the extreme. For several days they had had nothing to eat except a few unpalatable lichens, plucked from the cold soil over some frowning precipice. Haggard and woe-begone, they staggered about like gaunt spectres or living skeletons, endeavoring with their little remaining strength, to build a canoe of their canvass trappings. The sun just skimmed above the far southern horizon, and then sank to rest after shedding for a short time its cold leaden rays, and the long dark night followed; the heavens, studded with bright stars that glittered and twinkled like sparkling diamonds in the blue concave above, and the silver moon, riding high, seemed to whisper hope, even yet, to the famishing explorers.

On the afternoon of the 1st of October, one of the men staggered in with the antlers and back-bone of a deer, which had died or been killed, probably in the summer. To the starving men it was a prize. Captain Franklin says, "the wolves and birds of prey had picked them clean, but there still remained a quantity of spinal marrow, which they had not been able to extract. This, although putrid, was esteemed a valuable prize, and the spine being divided into portions, was distributed equally. After eating the marrow, which was so acrid as to excoriate the lips, they rendered the bones friable by burning, and ate them also."

Three days longer, during which the feeble sufferers talked almost incessantly of the pleasures of eating, and the canoe was finished. The passage of the river was accomplished in safety, and they struck with rising spirits for Fort Enterprise, then only forty miles distant, where Captain Franklin had sent back men on his entering the Polar Sea to await his return. But their hilarity did not last them long. The driving snow and keen frosty air seemed to pierce the very marrow of their bones. The last remains of their old worn-out shoes and scraps of leather had been eaten, and again they were famishing with hunger. In despair two of their number sank down utterly exhausted, and perished in the snow.

At length they came to a spot where a few sickly lichens grew, and here a portion of the men declared they could go no farther. Franklin and seven others pushed on, promising assistance as soon as it could be obtained. The distance was now twenty-four miles, and ere he reached it four more men had sank exhausted by the wayside. It was on the evening of the 11th of October, that the captain and four worn and weary men staggered up to the Fort. With the exception of a single meal of miserable lichens, not a morsel of food had passed their lips for five days. Here, at last, they expected relief. Imagine their feelings when, on entering the Fort, they found it silent, desolate, and deserted!

Mr. Back, who had preceded them, had reached the house two days previously, as was indicated by a note which he had left, and had gone in pursuit of the Indians, from whom he hoped to obtain assistance. With faltering steps the starving party proceeded to collect the bones and skins of deer that had been killed at the time of their residence there the previous winter, and prepare them for food. The bones were pounded, the hair singed from the skins, and the whole boiled to an acrid soup, which rendered their mouths sore, and sickened them to a sad degree. Day by day it sustained their lives; it was their only food. What will not man resort to, to satisfy the pangs of hunger in the last stages of starvation! For eighteen days they lived thus, and no relief came. On the evening of the 29th, as they sat around the fire trying to look on the bright side of their now almost helpless situation, Dr. Richardson and Hepburn, whom they had left in an exhausted state, some three weeks before, entered—in amazement they gazed upon each other. Hepburn had just killed a partridge. The doctor seized it, tore out the feathers, held it for a few moments before the fire, and divided it among the men. Like hungry wolves they ravenously devoured it; for it was the first morsel of decent flesh they had tasted for thirty-one days. Richardson and Hepburn had a tragic story to tell, which we will not attempt to lay before the reader. Neither will we attempt to portray the suffering and misery that followed. Reduced as they were, they became still more so. They moved about like grim, melancholy spectres, hollow-eyed and almost fearful to look upon. Their voices became hoarse, husky, and hollow, scarcely above a whisper, and one after another, they sank to rise no more. At length, on the 7th of November, the long-looked-for aid arrived. Three Indians came, loaded with provisions, and the little band, almost on the verge of the grave, was saved. Perhaps no more touching scene was ever witnessed than that of the starving survivors, with streaming eyes, offering up their prayer of thanksgiving for their timely deliverance.

After having become sufficiently recruited, they proceeded on their homeward journey. At length they reached the coast and sailed for England, where they arrived in October, 1832. Thus terminated the first journey of Dr. Franklin. He was born an explorer. The perils he had experienced did not deter him. He sailed again, and again beheld the icy regions of the North. His enthusiasm finally carried him too far, and he came back no more. Experienced navigators followed, and his remains were found in 1859. His ships were frozen in the ice, and his men had perished. The naked and ghastly skeletons told their silent melancholy tale more forcibly than human lips could utter. The Northern Ocean, during the long Arctic night, when the Aurora flashes silently across the sky, lighting up the moving mountains of ice that crash and jar against each other with the thunder of an earthquake, produce a scene never to be forgotten by the bold mariner. The scenery in the far frozen seas, where Perry, Kane, McClure, and Hall, dared the surrounding dangers, amid the mighty workings of Nature, forms a subject ever fraught with interest.

Ups and Downs.

There are three senses in which this phrase might be interpreted. In one it referred to men who having been rich became poor, or who rose from extreme poverty to independence and wealth. In another it might allude to individuals who having been unknown and unhonored, became by a turn of the wheel of fortune men of high official position, flattered and fawned upon by everybody, or to those who having been among the foremost of the nation, fell into obscurity and contempt. The third form of vicissitude is in a man's own self. There are some seasons when men are contented, brave, and cheerful, and others when they are miserable, finding fault with themselves, and with everybody else. And indeed this third condition is essentially the one on which happiness depended; for a man, whether rich or poor, in high station or low, will always, if indeed a man, have the power to be happy between the crown of his head and the sole of his foot. But with regard to those visible vicissitudes of human life, those ups and downs which all could see, there are few men forty years old, and residents of America, who could not recount some examples of such changes. The usual explanation, all luck is false, and the expression dangerous. It is not true to say that it happened so, because the fact is that the causes which brought about the results, are in the majority of the cases unknown to the public. Great successes could be traced to well-recognized qualities of successful men; tremendous failures pointed to either some fascination by some glittering, unsafe scheme, or some entanglements with wicked associates and partners.

Young men should ask themselves deliberately the question: "Is it to be up or down?" Probably all young men did so at some time or other of their youth. There are some who, at the outset of their career, fixed their eyes steadily upon the distant mountain top and said: "There is my goal; I will reach that." And some of these succeeded, and reached the height with consciences unstained, with memories unseared. There are others who also succeeded, but at the expense of honor and of conscience and of self-respect. Yet probably the majority of those who made their way to the top did so with no set purpose of rising, but steadily accomplished the task set before them, doing it with all their might. By steadfast application to duties they won the regard of employers, and found themselves continually rising without an effort of their own. Probably no young man ever deliberately purposes to himself to go on down, but unfortunately he insists upon having tobacco, drink, amusing but vicious comrades, too pleasing but disgraceful female friends. These were all weights, which if a young man carried he could not rise, but must be swept downward to ruin. On the other hand, the things that would help a young man to go up in the world are good temper, a cheerful way of looking at things, a sense of true honor, a feeling of sincere honesty, a desire to be personally pure, and a keen longing, without which all good gifts are naught.

RECREATION does not mean idleness, and it may mean labor. A wise man will so arrange his labors that each succeeding one shall be so totally different from the last that it shall serve as a recreation for it. Physical exertion may follow mental, and then give place to it again. A man equally wise in all other hygienic measures, who could nicely adjust the labors of mind and body in their true proportions might hope to obtain old age with all his mental faculties fresh and vigorous to the last.



WHEN WORK IS DONE.

BY G. W.

O'er meadow-lands and flowery lea
The fading sunlight passes,
And rippling waves dance trembling
O'er nodding grasses.

Back from the fields the cattle come,
The oft-trod pathway taking;
And bees flit by with lazy hum,
The flowers forsaking.

And now the trees, gold-tipped with light,
Fantastic shades are flinging;
And wearied birds their silent flight
Are nest-ward winging.

Already, seeking quiet home,
The sons of toil have wended,
For night is near, and rest has come,
And labor's ended.

Beyond the hills the dying day
Hides all the blue with blushes;
Then, like a babe that's tired with play,
The worn world hushes.

* * * * *

Thus ends the day, so peacefully,
So free from moan or sighing,
With such a flood of light, that we
Scarce know 'tis dying.

And we lament not, for we know
Another day must follow;
Again the golden beams will glow
O'er hill and hollow.

So, too, on us may eve-tide creep,
Calm, radiant, free from sorrow;
As wearied children may we sleep
To wake to-morrow!

A Railroad Signal Office.

AN HOUR IN THE GRAND CENTRAL DEPOT AT NEW YORK.

The signal office is a little room at the northern entrance of the depot, about thirty feet above the pavement. It is reached by a narrow passage way from the west side, and when you get into it you see a sight which made Jonas go into an unmistakable surprise. Looking down the depot there was a space of more than 600 feet extent by 200 feet breadth, covered with an iron roof and lighted from the top. Trains of cars were

coming and going incessantly, but no confusion was perceptible, and everything, as my friend said, "went on like clockwork." There are two operators in service here, relieving each other during a tour of duty, which extends from 5 A.M. to 11 at night, their motions being regulated by a large and costly clock. The gentlemen in charge received us very politely, but before we had hardly thanked him we heard the sharp and rapid ring of a bell overhead. It was marked "Ninety-sixth to Seventy-fifth street." "You see," said the operator, "there is a train coming in, and it wants to know if we are ready for it." "But how does it ring that bell?" said Jones. "By electricity," was the reply. "This is Hall's patent, which works like a charm." In a few minutes another bell rang. It was marked "Sixty-first to Fifty-sixth street." "The train now reports itself again," said the operator, "and this renews notice either to prepare for it or to signal it to stop." He touched a telegraphic machine, and then said, "This throws up the signal to come in," and sure enough, in a few minutes the train arrived. One hundred and forty trains arrive and depart in a day, including the Central Hudson, the Harlem, and the New Haven Roads, and hence the signal service is one of incessant activity. The operator then informed us that each road has four starting bells of different keys, all of which were rung by him by means of electricity. Three started passenger trains, and one ordered out the cars as soon as emptied. "You see," said he, "this train which has just come in. The passengers are gone, and I want to know if the baggage is taken out." He touched a stop and rang a bell (as he said) 600 feet distant. In a moment a bell overhead struck twice. "Baggage is out," he said, "otherwise he would have struck once, and I would have waited. I must order the train out. Do you see that locomotive just ahead? Well, now, see it move." He touched a stop and I saw the letter Z displayed at a window in a side building. "He hears a bell ring, also," said the operator. The engine backed down and hitched to the empty train and the Z disappeared. "I shall now send him out," said the operator, as he touched another stop, and the empty train at once moved forward and left the station. The letters X Y Z (I may add parenthetically) designate the locomotives of the Harlem, Hudson River, and New Haven Roads, and are the signals to back down and connect with trains.

"I am now about to send out a passenger train," continued the operator—"A half hour ago I struck twice to open the doors and let the passengers pass from the sitting-room to the cars. I shall soon close that very door, but first I must stop checking baggage." A small knob was touched by his finger. "Now," said he, "the next trunk that comes must wait for another train." There (another touch with the finger) the baggage car is hauled out and switched on to the right track. Five minutes more and she is off. Here goes the 'close the door bell'; (at a touch) no one passes in after this. Now I say 'all aboard,' (a touch), and we hear the distant voice of the conductor echoing through the vaulted roof. "Now it moves," (another touch), and the rumbling movement was immediately perceptible, and in a few moments the train left the station. As the cars go up the road they signal their progress by ringing bells in the same office until they have got through the city streets, and give assurance of a clear track for all that may follow. The station will contain twelve trains of thirteen cars each, and by means of this wonderful system all are managed with dispatch and safety.

The Lemming.

This peculiar little animal is a native of Sweden. It has long hind legs, and short ones before, something like the jerboa, and is about the size of a dormouse. It is one of the most singular little animals to be found. In migration, millions move together, and nothing can turn them aside. They will perish in fire, it is said, or attempt to swim a lake, but will not turn to the right or left. They live chiefly on roots, and after passing over a meadow, give it the appearance of having passed through a very heavy and severe drouth and then harrowed up. They often go to battle against each other, and armies of them will enter into an engagement and continue the fight until one side is entirely vanquished. The carcasses left after the battle infect the air for several miles around.

Obstinacy and Firmness.

Obstinacy produces as much mischief in connection with the smallest matters as with those of the greatest importance. A person of obstinate disposition insists as resolutely on having his own choice in the most trifling affairs, as in those of the utmost consequence to all concerned. Firmness is a wise and noble virtue, which shows itself when the occasion is of sufficient dignity to demand it; but obstinacy makes no difference in the things themselves; and those who are affected with this infirmity will, for almost nothing, carry things to the most painful and alarming extremes. Love, friendship, the happiness and hopes of families, they will dash to the ground, rather than force themselves to say, "I submit; let it be as you prefer." The matter at issue is sometimes so trivial, that, looking upon it on all sides, we are unable to find a reason for the stubbornness with which the kind of people of whom we are speaking adhere to their side of the subject in dispute; and we are forced to the conclusion that there is no other reason, than a blind and insuperable reluctance to follow any will but their own. They are slaves to whatever their own minds happen to suggest as proper to be done. It charms them like a serpent, and they are utterly impotent to resist the malignant spell it throws upon them. And it is the direct fruit of this weak and abject bondage under which they lie to their own wishes, that they attempt an intolerable tyranny over the minds of all others who come in contact with them. They seem to think that to have their own will on all occasions is happiness itself; and that to fail in this point is to suffer one of the greatest evils of which the present life admits. They are ignorant that there are a thousand things which are sweeter than to have one's will; and that kindly to yield to another's pleasure is a source of infinitely purer satisfaction than can result from the fullest success in having things according to one's mind.

Effects of Vegetation in Cities.

It is well known that trees absorb carbonic acid gas and give off oxygen, the first being as injurious as the last is indispensable to animal life. Men and animals, on the contrary, absorb oxygen and give out large quantities of carbonic acid gas. When, therefore, we consider the immense amount of this gas given off from the lungs of the inhabitants—human and brute—of a large city, and the immense amount produced by the combustion of the fuel used in dwellings, factories and workshops, we may form some idea of the enormous vitiation of the atmosphere thus produced. It has been estimated by some French authorities who have given attention to the subject that it requires more than two acres of forest to purify the atmosphere vitiated by every three inhabitants. According to this, a city of 600,000 inhabitants would require 400,000 acres of vegetation to take up the carbonic acid and other deleterious gases given off by its people. If it were not for the action of the wind in removing the atmosphere poisoned by the emanations from the city, and replacing it with a purer atmosphere from the surrounding country, the city would soon become uninhabitable; but the winds have not such full sweep over cities, owing to the height of the buildings and other causes, as thoroughly to cleanse the atmosphere brooding over them. Hence the necessity of encouraging the growth of as much vegetation as possible within the limits of the cities themselves.

So nearly exact is this estimate that we may regard it as demonstrating the necessity of large parks and squares in cities. But, through the growth of the city, the land becomes too valuable to provide a sufficient area of parks and squares for such purposes. Resort must, therefore, be had to the streets; and hence all streets not devoted to commercial purposes should be planted with continuous rows of trees on either side. Paris now has so large a number of parks, and its streets and boulevards are so profusely planted with trees, that, according to very reasonable estimates, the death rate has been thereby reduced from one in thirty-four, as it formerly was, to one in thirty-nine, as it now is. Added to the beneficial effects produced by trees in absorbing the deleterious gases, is the shading of gutters and roadways, which materially retards and prevents the action of the sun in producing fermentation of the fecal and other offensive matters incident to public streets, and so liberating the unhealthful gases they

contain. The roots of the trees also take up large quantities of such matters as they are washed by the rains into the interstices of the pavements. Then, again, is the comfort to be derived from the shading of the sidewalks. It is the glare of the sun upon these when unprotected, which, during the tropical heats of our summers, gives such an oven-like atmosphere to our streets, and causes so many cases of exhaustion from heat and the often fatal sunstroke. In addition to these sanitary benefits should be added the enhancement of the beauty of our cities by tree-planting, and the comfort it would afford to those who may have to walk through them in the hotter parts of the day.

Besides this planting of trees in the streets, the yards of the houses should have trees planted in them; or, if this is not desirable on account of a grass-plot being considered necessary for laundry purposes, the fences should be covered with vines, or the borders adjoining them planted with strong-growing plants, such as sun-flowers and others well known as powerful absorbers of malarial matters.

Professional Diversions.

The concurrent pursuit of some department of observation, not in the direct line of the necessities of a professional man, always conduces to the integrity and health of his mind. In the words of a great orator, "it calms, elevates, and restores the jaded powers, clears the intellect, cools the judgment and raises the moral tone; it makes life less a drudgery, and more a liberty and a joy," for the lawyer or the physician to turn aside from professional reward and anxiety for some precious moments every day, and be in them a devout and happy scholar and "freeman of the universe." Nor are the incidental results of these diversions unimportant in the development of science. In many instances they have contributed directly to the success of the observer in his own professional pursuit. Newton was lounging in an orchard when he saw the apple fall. Haüy, by strolling among the plants in the king's garden, became permeated with the ideas of symmetry which Cuvier tells us led him to the discovery of the laws of decrement in crystals. The invention of the suspension bridge by Sir Samuel Brown sprang from the sight of a spider's web hanging across a path along which he was taking his morning walk. The best mechanic's bit is said to have been modeled upon the natural mechanism of a little insect. Some of the most wonderful combinations of color achieved in art have been gained by studying entomology. The shipworm taught Brunel the way to build the Thames tunnel. A lobster's shell suggested to Watt the model of the iron tube through which he conveyed water under the Clyde. In many other instances they have led the observer to generalizations which are of boundless importance to mankind. Galileo was a youthful medical student when he noticed the swinging lamp in the Italian cathedral. Goethe was carelessly wandering through a Venetian graveyard when the sight of a skull suggested the train of thought which led to a determination of the relations of the bony coverings of the head and the spine, which even the English naturalists now concede to be an unsurpassed contribution toward a general scheme of philosophic anatomy.

Ownership of Cattle in Texas.

The ownership of cattle in Texas is decided by registered marks and brands. To get a mark or brand registered, one must own ten head. Anything one year old and over, belongs to the man who will brand or mark it. It is necessary, therefore, for a man owning cattle, to mark his calves to keep others from appropriating them. A yearling is called a "Mavric," a two year old and over is called a "Conscript." Some cattle live and die conscripts. Cattle branding is a trade which gives room for excellence, as well as the printing business, or any of the mechanic arts. An expert will mount a trained horse, and while running at full speed by a yearling or even a two year old, will catch it by the tail and with a quick jerk, as his horse passes it, throw it to the ground, dismount and catch it before it can get up; he will then tie it and build a fire and heat a horse-shoe, or any old iron he may have with him, and write the brand very much as you would mark a grain sack with a paint brush. When many are to be branded, they are taken to a ranche and corralled.

Delusive Buoys.

"Every winter the fields of ice that float down from the Hudson River carry several buoys seaward, and thus destroy the marks which render the navigation of the bay safe and easy. Once fairly adrift, the buoys enter upon a roving and mendacious existence, having no other apparent motive than the confusion of honest sea Captains. The skipper of a Maine schooner who approaches our coast in December, meets miles out to sea a hollow iron globe, bearing in large letters the delusive legend "Swash," or perhaps "Frying-pan." He knows that according to the chart this buoy is to be found only in New York Harbor, but meeting it as he does, when out of sight of land, he is compelled either to abandon his faith in the infallibility of buoys, or to believe, in spite of the evidence of his senses, that he has already passed Sandy Hook. This is a terrible dilemma. If the skipper once permits himself to doubt the veracity of a buoy, he has no security that he can preserve his faith in sextants and chronometers. If he blindly holds fast to the conviction that buoys cannot lie, he may wreck his schooner on Fire Island or Absecon Beach. While he thus shrinks back from the conflict between reason and faith, the mendacious buoy goes merrily on its way, to mock and to muddle other unhappy skippers, leaving its first victim to grope his way blindly into the harbor, where his moral nature receives a second blow on perceiving that even the chart is no longer infallible, and that in places where it asserts that buoys are certain to be found, there is not a vestige of any variety of buoy."

These remarks suggest a train of thought concerning the boys of our country. They are coming daily into the world's arena of action, to lead social lives, to fill business and professional situations, to assist in making our laws. Many of the youths of to-day will hold important offices in the land; and for an example to follow they naturally look to the prominent men of the day, who have by ability and energy, aided by circumstances, attained honorable position.

With eyes just opening to the promises of life; not yet perceiving the glamour of insincerity and fraud hidden under the cloak of pretension worn by many men who should be above bribery, high above deception and underhanded knavery: individuals who should scorn to enrich themselves dishonestly by means of the position in which fortune or the nation has placed them. Wearing a face and manner of disinterested and honorable intention, they should be found staunch and immovable as the sea rocks on the shore; which, though beaten and washed by the angry tides of centuries, still remain at their posts undismayed. Integrity *should* dwell deep in the heart, and guide each transaction and speculation hatched 'neath the broad thoughtful brows of these men.

But, boys, it is not always the case; so when you cast admiring eyes upon apparently straightforward successful men, or adopt their conduct as an example by which to direct your own course, because they seem to your senses all worthy of imitation and leadership, beware lest they be like the buoys alluded to above—drifting about without firmly rooted principles. Beware! lest imperceptibly you follow in their wake until your ambitiously struggling bark glides into the sea of dissipation, tossed about without anchor or compass amid the dangerous waves of fraudulent speculation, loose morals and disastrous habits.

There are high-souled men of noble purpose, whose lives would bear the closest scrutiny. Study closely the habits of men; be not altogether won by the words they speak; look closely at motives and actions. These speak louder than words, and if uprightness exist it will proclaim itself.

It is all important that you start aright. You desire to become useful members of society; to be honored by your fellow men because of service to the community of which you form a member, however lowly or exalted be your place.

Quite as much good is accomplished, many times as great an influence wielded by the man occupying a lowly station, as is exercised by him who attains to the loftiest eminence of power. Did you ever drop a pebble into the river and note the circles widening and extending to a great distance from where the little stone fell? So with the daily actions of our lives—their influence extend far beyond our ken. They creep away to cheer or discourage; to aid in the advancement of good, or to assist in degrading poor weak fellow mortals. Then again, *I say, start from a good foundation, which will grow firmer*

with years, to sustain a high sense of honor through prosperity or adversity, from youth until the hoary head of age shall crown you with honor. Let no little mariner sailing within the circle of your influence now, or when manhood's strength is yours, be misguided or directed by your example to drift out of his proper course. By kind and honest endeavor assist him to pass the dangerous shoals and quicksands that gather around the path of youthful feet. Let integrity be your guiding star, good will to all sit at the helm, elevating habits furnish your snowy sails, and a Christian life, free from guile, attend your daily walk. Then press on to victory, and delusive boys will not mislead, temptation will be overcome, untruthfulness and dishonesty will hide themselves from your presence, and a successful career will be yours. I do not mean to say that wealth will dwell in your home, nor Fame be your welcome guest, nor applause of men encompass you; although all these you will be more liable to win by an honorable course. But this mode of life will fashion your character into a beautiful example; a shining light to all who may be associated with you; a power for good that will flow outward from your life into the lives of others, giving strength and encouragement, perhaps, to thousands struggling with temptation and sin.

Be undoubted buoys founded on a rock, triple chained and bolted through, so that no bark entering port where you reside shall have any doubt as regards your honor and reliability.

Sleep.

"Tired nature's sweet restorer." Take enough of it—in the fore-part of the night, if possible. "Midnight oil" is a great humbug and health-destroyer. Sleep! It is nature's time to carry on the processes of assimilation—to manufacture food into blood, and blood into healthful tissue. The time for repose is the time for the repair of waste. A man is taller in the morning than he is at nightfall; his brain is clearer, his step more elastic, his nerve steadier, his muscles more energetic. Give children plenty of sleep. Put them to bed early. Shut out the glare of gas, and resist the appeals to "sit up," to go to night parties, night concerts, night Sunday-school exhibitions, night meetings. Send them to bed betimes, and give them sound sleep, sound nerves, sound constitutions. Night-air is bad. Malarial are abroad, and there is no kindly sun to dispel the noxious vapors, and war upon the deadly venoms. Sleep in the upper stories, in the largest rooms of the house, and the best ventilated. Let a child have its sleep out in the morning. Never wake it till it wakes of its own accord. Some young men and young women have to get up at six to go to employments. It will not do for such to sit up till eleven or twelve the night before. Sleep till the eyes open of their own accord. It is hard for a boy or girl to be called to dress and go about business when the tired, sleepy and unrested eyes feel as if they were "full of sticks."

Different persons require different amounts of sleep. Some want six hours, some seven, some nine. General Grant wants nine, and said, at the siege of Vicksburg, he could get but seven, and it almost killed him. John Wesley found that he could do with six, and fixed his hours of rest between ten and four; and, by example, if not by precept, put the whole Methodist preaching fraternity into the same inexorable strait-jacket. John Wesley became thus the author of a fearful waste of life and energy. He killed off whole generations of preachers, who undertook to sleep six hours because this exceptional bundle of animated iron-wires could do with six. The strong require much sleep, the weak and feeble more.

Sleep should be graded by periods of life, and, perhaps, by temperaments; but no one man's experience is a guide for any other. The average has been given as follows: The infant sleeps twenty hours, and wakes four; the old man wakes twenty and sleeps four; in middle life seven to nine hours sleep are requisite to keep up the balance between waste and supply. Nervous persons find it difficult to sleep. Such should nurse the hours of rest with great care; avoid tea, coffee, and stimulants before retiring; avoid hard, exciting studies of an evening; avoid excitements of all kinds, and court quiet, music, genial conversation, and soothing employments or meditations. Above all, go to sleep when the first fit of drowsiness comes on. Roused out of that, one may lie awake for hours, and roll and toss, and not be able to entice sleep to the easy pillow.

What Shall be Done with the Girls?

The question, "What shall be done with the boys?" is, to the average American parent, far more perplexing than that other equally momentous one, "What shall be done with the girls?" The boys must be trained to some profession or business by which, when they become men, they can earn sufficient money to support not only themselves, but too often the idle and almost useless women they are foolish enough to marry. As for the girls, it is only necessary to educate them in a showy, superficial manner, to dress them as handsomely as the father's means will permit, and in due time to pass them over to the young men, who are expected to hire one, or two, or three servants to wait on the dainty, helpless creatures.

What to do with the boys is, under this order of things, becoming every day a more and more difficult question to determine. The cost of living has so greatly increased, in consequence of the multiplication of home luxuries in the shape of fine furniture and expensive houses, and in the too frequent abandonment of households to the waste and destruction of servants, that the young man who is to take upon himself the maintenance of a wife and family must be thoroughly educated in some business by which he can obtain the means to enjoy the blessings of a modern home. But success in any business or profession comes only after years of patient labor; and the father knows but too well that in almost any choice of a life-pursuit which his boy may make, the chances of a prosperous result are largely against him. He finds too often most of the promising places already filled by more favored ones, and is forced to accept a position that offers little apparent advantage. The look forward is, in consequence, by no means hopeful or encouraging.

If the question, "What to do with the girls?" was more carefully considered and more wisely determined, this other question of "What do with the boys?" would be one of easier solution. Why should the girls be raised in idleness? Why should work and service be a disgrace to them, and an honor to their brothers? Why should the home be filled with ignorant and half-trained servants to waste and annoy, when there are two or three almost useless daughters in the household, who would be healthier in mind and body if each took her share of the work, giving order and comfort to every department? The father and brothers devote themselves to earnest service; but the wife and daughters too often sit in comparative idleness at home, demanding to be served.

It is just here, that the social life of the great middle class of Americans, especially in our cities, is so sadly defective. In this false home-training of our girls we hurt the body politic; for in that training lies the fruitful source of one of the most deplorable of all social evils. Young men cannot, unless rich, or in prosperous business, afford to marry. The cost of supporting a woman who thinks it degrading to make a loaf of bread, cook a dinner or wash the dishes, even if she knew how, and who must have silks, and laces, and jewels like the rest, is too great for most young men who have to depend solely upon their own hands and brains for a livelihood. Some will not marry at all. Others take the risk and the burden with a half-blind confidence that all will come out right. But too many of these, after a few years, find themselves hopelessly in debt, while the family expenses go on steadily increasing. Then come shifts and expedients. Some break up their homes and try boarding, in order to reduce the cost of living. Some make desperate business ventures, and fall, in consequence, even more hopelessly into debt. While others cheat, rob their employers, plunder in public trusts, or join the steadily increasing army of miserable defaulters, in order to keep up a style of living as good as their neighbors.

But, is all this chargeable to the false education of our girls? Too much of it. And until they are taught that work and service are as honorable to them as to their brothers, and idleness as wrong and disgraceful, we shall see little or no change for the better in our social life. Too many servants and too many idle women are the curse of American city homes.

What, then, shall be done with the girls? Need we answer the question? Let them be trained from the beginning to regard all household work as good and honorable, and to be skilled in every department of home economy is as much a woman's duty as it is the duty of a man to be skilled in the

trade or calling by which he is to become the bread-winner for his family. Let duty and service be set before them as the highest end of life, and pleasure and self-indulgence as the lowest. It is the false sentiment which reverses all this that is yearly working such sad disasters in so many beautiful homes; homes built upon the sands of pride and self-indulgence, instead of upon the solid foundations of prudence, industry, economy and a loving self-sacrifice.

Character.

Character is a fortune. It pays a better dividend than bank or railroad stocks. The young man who goes forth in the world with an unimpeachable character, can never suffer permanent defeat. The blows which he receives from his antagonists will bound back from such a character, and all the injury they inflict will be upon him who gives them. In every emergency it is the man of character who is sought. Those lacking this beautiful jewel may for a time crowd themselves forward, and so long as nothing of importance is at stake, be permitted to enjoy prominence in state and social affairs; but when the crisis comes, when government is threatened, when society is menaced, when it is a special honor to be prominent, character is scrutinized, and only he whose character is spotless, is selected to lead. At such times brilliant reputations fade as the meteor fades, and their possessors find that reputation is one thing and character quite another. They then regret that this important difference had not been thought of before. But the world seems to learn little from these lessons that individuals so often learn under severe circumstances.

The world, as a rule, is careful of its reputation—the outside cover of the heart—the mist which hides the soul; but of its character—the heart itself—the object of God's scrutiny, it is deplorably careless. The question is not what I am, but what will the world think me? With a knowledge of the advantages of character, both in this world and the next, may every young man who reads this, strive to live in such a way that he can respect himself, and be utterly regardless, so long as he is right, of the opinion of the world.

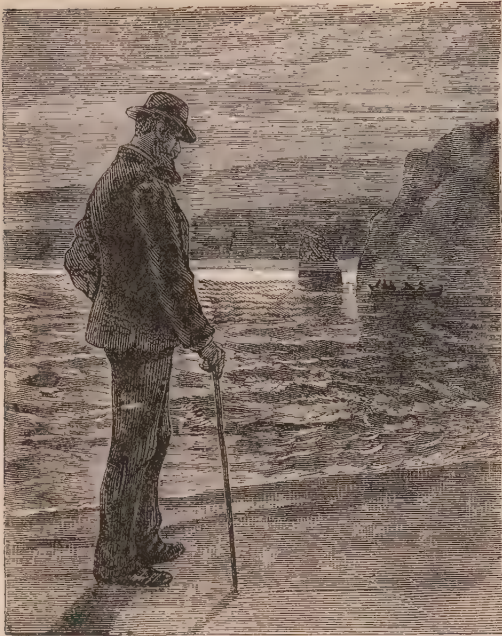
Another most important thing to remember is that character once lost is gone forever. A shattered character may be retrieved in part, but can never be restored to its original strength and perfection. However uprightly a man who has been reckless of the purity of his character may live after reformation, the world, while it may treat him kindly and even honor him to some extent, will regard him with a certain degree of suspicion and fear. Hundreds and thousands have found this to be true from bitter experience, and oceans of scalding tears have been shed because it is true.

All this is in the hands and under the control of every young man whose character is to-day unblemished. None but ourselves can injure us in this respect. We can build up our own character or we can tear it down; and with the pictures of sad failures in life before us, the thing most important for each of us to do, is to see that no blot shall disfigure our individual characters.

Tests of Character.

A great many admirable actions are overlooked by us, because they are so little and common. Take, for instance, the mother who has had broken slumber, if any at all, with the nursing baby whose wants must not be disregarded; she would fain sleep awhile when the breakfast hour comes, but patiently and uncomplainingly she takes her timely seat at the table. Though exhausted and weary, she serves all with a refreshing cup of coffee or tea before she sips it herself, and often the cup is handed back to her to be refilled before she has had time to take her own. Do you hear her complain—this weary mother—that her breakfast is cold before she has time to eat it?

And this is not for one, but for every morning, perhaps, in the year. Do you call it a small thing? Try it and see. How does woman shame us by her forbearance and fortitude in what are called little things! Ah, it is these little things which are tests of character; it is by these "little" self-denials borne with such self-forgotten gentleness, that the humblest house is made beautiful to the eyes of angels, though we fail to see it, alas! until the chair is vacant and the hand which kept in motion all this domestic machinery is powerless and cold.



MUSIC ON THE WATER.

BY R. RICHARDSON, B. A.

Slowly by the beach I wander, and in cadence low and clear,
O'er the moon-lit harbor floating, steals the music on my ear;
Soft the Austral stars are glowing, blending all the tranquil
scene,

Rock, and wave, and dreaming woodlands, in a haze of silver
sheen.

As I watch the rippling waters creeping up the sandy shore,
Through my brain old thoughts are wandering, bringing back
the days of yore,

When I roved, a college stripling, by the Devon's winding tide,
And the world that spread before me seemed a landscape fair as
wide.

And old faces gaze up at me, shadow-like, from out the wave,
And I listen to soft voices hushed forever in the grave;
While that sweet and homely music, wafted on the still night
air,
Soothes my spirit, jaded somewhat with the city's toil and
care.

'Tis some merry boating party, landward bound at close of day,
Lightening their homeward journey with a happy roundelay;
Now it trembles, ebbs and wavers, faint and fainter, and again
Swells, and wakes the harbor echoes, and I catch the glad
refrain.

Lo! a little skiff is rounding where yon headland looms in
sight,
In her wake a soft and shimmering trail of phosphorescent
light,

Clear and clearer swells the music till the boat has gained the
strand.

Dying out in lingering cadence as the sharp keel cleaves the
sand.

Cotton and Wool.

BY JAS. P. DUFFY.

COTTON.—A piece of cotton or muslin does not seem a very complex affair; but how many among our young friends, or grown friends, either, for that matter, can trace the processes of its manufacture. And yet this is not a hard matter. To begin:

Cotton is a downy stuff in the pod of a plant called the cotton plant. The pod of the cotton plant is, in some respects, similar to the bean-pod. When ripe, the cotton-pod is black on the outside, whilst the inner part contains a soft down in which the seeds lie. Of this down stockings are made.

There are three sorts of cotton plants. One is a short, bushy tree; another creeps along the ground, growing in this manner; while a third is a tall, majestic tree. Of

these, the creeper produces the best article and greatest quantity.

The cotton is prepared in the following manner:—The downy stuff in the pods is first cleared of the seeds; by means of spinners, it is then spun into threads. These threads are then woven into cloth. The cloth may be of different thickness, and may be dyed of different colors.

Cotton clothing is, perhaps, worn by more persons than any other kind. Besides being warm and light, it keeps the skin dry, and is, for that reason, as wholesome as anything that can be worn.

WOOL.—The clothing made from wool is adapted to cold countries. Many persons have an idea that woolen clothes warm the body; this is altogether incorrect. Wool does not impart warmth itself; but it prevents the warmth of our bodies from escaping. Wool is the hairy covering of sheep; the wool of the Spanish sheep being extremely fine, and the best in the market.

It is taken from the living animal in summer, and in that condition is called *fleece*. The first thing done with the raw material is to pick and sort; this process being necessary on account of the same sheep producing wool of different qualities. It is then cleaned, and passed to the *wool comber*, who, by means of iron-spiked combs, draws out the fibres, smooths and straightens them. It is now ready for the *spinner*, who forms it into threads, the more twisted of which are called *worsted*, and the less twisted *yarn*. It is then used in weaving various articles of clothing.

Fruits and Flowers of Portugal.

They possess, indeed, many fine orchards of fruit trees, and groves of oranges and lemons, of olives and mulberries, and extensive forests of pine, chestnut, and cork trees; but they are far behind the Germans in forestal science, and the French—the masters of us all—in pomology. The Portuguese oranges grown in the interior are as large and good as those from St. Michael's, but the oranges which come from the seaboard districts—the only ones ever exported to Great Britain—are poor in quality, for which I can give no reason except bad cultivation, seeing that the best oranges in many other countries grow within reach of the sea breezes.

The olives of Portugal—an important food of the people—are gathered ripper than in Spain, France, or Italy, and are small and dark colored. They are probably more wholesome, and, in my opinion, far better to eat than the olives of any other country; so good, indeed, and so cheap, that it is a wonder they are not brought to this country in place of the hard, half-ripe and expensive olives of France. The oil made from them is generally badly made, but when purified it is probably quite as good, though by no means as saleable, as the fine oils of Italy.

The climate of Portugal appears to be identical in many respects with that of Japan; and many Japanese shrubs and flowers, which dwindle and fail in the open air in France and England, grow magnificently in Portugal. Chief among them is the *camellia*, brought, it is said, about ninety years ago from Japan, and often seen in Portugal of the size of a full-grown apple tree. The *camellia* seems to require a rather damp climate, and perhaps a granite soil, for the tree is a weakling in the dry air of Lisbon, but thrives close by at Cintra, and still better at Oporto, where many new and beautiful varieties are grown—among others the sweet-scented kind, of whose existence no English gardener or botanist to whom I have spoken seems to be aware. Lovely as the flowers of the *camellia* are singly, the tree itself, in full bloom, is by no means an attractive sight. A *camellia* tree with a thousand flowers on it might be supposed, with its compact growth, its shiny leaves of rich green, to be an exquisitely beautiful object, but it is nothing of the sort. The flowers, as they begin to fade, get to be of a dingy brown, and hang a long time on the tree, and a *camellia* tree in full blossom has by far the largest proportion of its flowers withered and ugly. As a flowering shrub the *camellia* is not comparable to the *poinsettia*, which blossoms to perfection in the Algarve provinces, with its mass of intense scarlet bloom, looking like a richly-colored silken drapery hung on the branches of the tree, or to the white *datura*. A *datura* shrub in full bloom, with its thousands of pendent flower bells reflected in a pool of water, is a thing not soon to be forgotten.



RESENTING AN INTRUSION.

*"By No Means a Silly Bird!"***DEFENCE OF THE GOOSE!**

ITS CUNNING AND INTELLIGENCE.

"At the flour mills of Tubberakeena, near Clonmel, Ireland, while in the possession of the late Mr. Newbold, there was a goose, which by some accident was left solitary, without mate or offspring, gander or goslings. Now it happened, as is common, that the miller's wife had set a number of duck eggs under a hen, which in due time were incubated, and, of course, the ducklings, as soon as they came forth, ran with natural instinct to the water, and the hen was in a sad pucker; her maternity urging her to follow the brood, and her instinct disposing her to keep on dry land.

"In the meanwhile, up sailed the goose, and with a noisy gabble, which certainly (being interpreted) meant 'leave them to my care,' she swam up and down with the ducklings, and when they were tired with their aquatic excursion, she consigned them to the care of the hen.

"The next morning, down came again the ducklings to the pond, and there was the goose waiting for them, and there stood the hen in her great flusteration. On this occasion, we are not at all sure that the goose invited the hen, observing her maternal trouble, but it is a fact, that she being near the shore, the hen jumped on her back, and there sat; the ducklings swimming, and the goose and hen after them, up and down the pond.

"This was not a solitary event; day after day the hen was seen on board the goose, attending the ducklings up and down, in perfect contentedness and good humor—numbers of people coming to witness the circumstance, which continued until the ducklings, coming to the days of discretion, required no longer the joint guardianship of the goose and hen."

The above remarkable instance of communication of ideas among the lower animals is related by the Rev. C. Otway; and he goes on to state, that on the evening of January 15th, 1874, he received a corroboration of the truth of the story. He says:—"I was narrating it to a lady, who I found was perfectly acquainted with the facts. She had heard the story told by a friend of hers, who had witnessed the curious alliance between the hen and the goose."

There are one or two points about this narrative which are deserving of notice. That language was employed by the goose, the hen, and the ducklings, is evident enough; but it is a curious question whether the ducklings understood the hen better than the goose, or *vice versa*. I am rather inclined to think that when a hen tries to call from the water the ducklings which she has hatched, she fails, because she does not know how to express herself. Her own chickens would never venture into the water, and she has no words in her vocabulary to suit the occasion.

Ducklings understand a duck well enough; but when they are in the water they do not pay the least attention to the hen on the land, though she may flutter about in the greatest distress, and use every means in her power to call her foster children to the shore. It seems in this case, as if the aquatic goose could talk to the aquatic ducklings, both having the same expressions in their vocabularies. It could take charge of them as long as it thought proper, and, when the time came, order them ashore, and deliver them over to the hen. They did not obey, or did not understand the hen, when she called them to come on shore; but they both understood and obeyed the goose.

That there was also a language common to both parties is evident from the action adopted by the hen. She could not have sat on the back of the goose unless invited by the latter, which is a bird possessed of remarkable intelligence.

How completely animals can make themselves understood by man, especially when they wish to help each other by the aid of man, will be seen in the following case, given by the Rev. J. G. Wood, where a gander managed to convey ideas to human beings.

"I was sitting at my window reading, when a gander came up and stood at the window, uttering the most discordant screams, and making the strangest gestures with his head. I was aware that he was a knowing bird but was not prepared for the sequel. As soon as my wife and I came out he waddled away round the stables and out-houses until he came to the mill-wheel. Then he stopped, went forward a few paces and kept looking around at us. We could see nothing wrong; but in a short time we heard the plaintive voice of some young goslings which had fallen through the mill-lock, which had been left open.

"There was no possibility of rescue except by putting on sufficient water to wash them through the conduit. I did so; ran to the end, caught them as they were washed out, and restored them to their delighted parent. The gander seemed overjoyed, as could be seen by his action as he strutted off to a place of safety, conscious that he had done great things. So he had."

It is a great libel to accuse a goose of being a silly bird, when even a tame goose shows such instinct and attachment. Its watchfulness at night-time is, and always has been proverbial; and it certainly is endowed with an organ of self-preservation. You may drive over dog, cat, hen or pig, but I defy you to drive over a tame goose. As for wild geese, I know of no animal, biped or quadruped, that is so difficult to approach. Their senses of hearing, seeing and smelling are all extremely acute, independently of which they seem to act in so organized and cautious a manner when feeding or roosting, as to defy all danger. Many a time has my utmost caution been of avail in attempting to approach these birds; either a careless step on a piece of gravel, or an eddy of wind, however light, or letting them perceive the smallest portion of my person, has rendered useless whole hours of manoeuvring.

We have often seen them in the great swamps of the Bureau Valley, along the Illinois, come in about dark, when it was just too late to draw a sight, noiselessly stealing along, so as to avoid the random shot of the hunter returning to camp, after a long day's work. So attached are they to their old grounds, and so liable to be pursued at night by reckless adventurers, that after a few warnings they baffle the most intelligent. Should their line of entry be discovered to-night as they come across the marsh from the south, to-morrow night, if you watch, you may hear the vibration of their wings as they pass over the timber to the north, in their approach to the old rice pond, or open water of the big slough. Upon all other occasions, and also when disturbed, they exhibit their usual propensity to indulge in gabble and goose talk.

The most prominent among the varieties in the West is the Canada goose. The next, and existing in great numbers, is the white-fronted or laughing goose, called by many "brant."

It is amusing to watch a flock of laughing geese as they approach a favorite feeding ground or resting place. They come first in the regular acute-angle line of flight. Suddenly they break ranks, and with one accord the whole flock begin a series of evolutions, tumbling and turning high in the air, and then descending in a most comical and irregular manner, to the amusement of the observer, all the while indulging in a jabber more resembling the merry laughing of a bevy of school girls than anything else, from which peculiarity they receive their name.

The flight of wild geese is performed with an order which indicates considerable intelligence; each individual keeps its place in the ranks; the male bird at the head of the triangle or line, when it becomes fatigued, retiring to the rear, and the next one coming forward to take the leading and most fatiguing position; they follow the leader blindly, sometimes to their own destruction. Their sight and hearing are acute, and while they feed or sleep a sentinel is always on the watch to give the alarm at the approach of danger. From the height at which they fly, their resting on the water, and their vigilance, they are very difficult to obtain; a fact which has found expression in the saying, "a wild goose chase," as indicating the hopeless pursuit of any object.

The Canada goose is found throughout North America, and accidentally in England. An English writer says: "In this neighborhood (near Derby) we are frequently visited by small flocks of the Canada goose, which is a bird, I believe, of very local distribution. They always announce their approach by a

loud noise, and, after wheeeling two or three times round the piece of water near the house, they alight and commence grazing. They are very ornamental objects, standing about the lawn, tossing their heads, and making curious convolutions with their long necks. It frequently happens that two remain when all the rest are down. After reconnoitering the place for a few days, they usually fix on the corner of an island as their resting place. This favorite nook of theirs is not far from where a pair of moorhens, year after year, produce their young; yet neither goose nor moorhen ever interfere with each other, but keep on very good terms; nevertheless, the former does not permit her sooty companion to make too free an approach.

After the female goose has fully made up her mind as to the locality of her nursery, she begins picking feathers, straws, and other soft materials, until she has at last constructed a feather bed. Having laid her eggs, generally six, she sits with most exemplary patience, and, notwithstanding the proximity of the water, which offers a great temptation, it is rare to find her off her nest. During the period of incubation, the male is, through the greater part of the day, sailing in measured time and slow over the water, never approaching his mate very near, nor straying very far. On the approach of any intruder, he displays great uneasiness, and his tranquillity does not return till the danger is over. Shortly after the egg-laying, the female has extricated herself from their home, and, when they are conducted to the water by the female, when they are joined by the male, who brings up the rear. The little family remain together till the return of the duck, when all this permissiveness, recruit themselves for a few days and then depart.

The spring migration begins with the melting of the snow, from March 20 to April 30, and the return commences in the first week of September; the birds passing along the coast, but most numerous in the interior; never flight is very high, their "honk" often being heard when the birds cannot be seen. The food consists of the seeds of grasses and aquatic plants, slugs and snails, worms, insects, tender blades of corn and crustacea, shell fish, and marine plants on the seashore.

The Canada goose is not often found in company with other species; their senses of sight and hearing are very acute, and their stratagems for avoiding their enemies evince great cunning; they rarely dive, unless when attempting to escape, at which time both old and young quickly disappear. They are shot from ambush at their feeding places, and may be attracted by living or artificial decoys. Beside man and the animals just mentioned, their worst enemies are alligators the congar, lynx and raccoon, and the white-headed eagle.

Our common tame goose is the European wild bird domesticated, from which it varies considerably in color, though less than ducks and fowls do from their wild originals. In England, Lincolnshire is famous for the raising of geese; on the continent, Hamburg, Bremen, Emden, and their neighborhoods, raise the best broods. Before the time of railroads many thousands together were driven from distant countries to London, travelling eight or ten miles a day; the price used to be regulated by that of mutton, being the same per pound, and it does not vary much from this now. The usual weight of a fine goose is fifteen or sixteen pounds, and by cramming with nourishing food this weight may be doubled; by confining the bird, to prevent motion, and employing fattening diet and stupefying substances, the body becomes loaded with fat, and the liver becomes enlarged and fatty from disease, forming the *pates de foie gras* so much esteemed by epicures. Geese are in the best condition for the table about Christmas time.

Before the days of metallic pens, goose quills formed a considerable article of trade, the live bird being stripped once and sometimes twice a year for this purpose. The value of the feathers for beds and pillows is well-known; the living birds being plucked from three to five times a year, at which periods, if cold weather come on, many die; if well fed and cared for, a goose will yield about a pound of feathers in a season. They generally breed only once a year, laying every other day, and depositing seven or eight eggs; incubation is about thirty days, and the female will sometimes produce enough for three broods, if the eggs are taken away in succession. They begin to lay early, are close setters, and very careful of their young—fiercely resenting the intrusion of anything coming too near their offspring.

We witnessed an example of this when spending a few weeks in the country, at a farm house, last summer. In a field opposite the house was a spring to which a goose and her little ones made daily excursions. One day a sheep wandered from the flock into her vicinity and innocently looked over the little bank at Mistress Goose and her interesting family. She scolded vigorously, but the curiosity of the sheep was evidently excited, and he continued to peer over, when with a loud noise the bird flew furiously at him, flapped her wings in his face, pecked at his woolly coat, driving him before her until satisfied that he was sufficiently punished and disarmed of evil intention, when she hastened back to her downy babies at the spring.

Of the attachment of geese to particular persons there are many instances. A farmer in Cheshire County, England, had a flock of these birds, when, at the end of three years, one, without any apparent cause, showed a great partiality for its master. It followed him to the mill, the blacksmith shop, or through the bustling streets of a neighboring town; and so great was its perseverance that he was compelled to fasten it up when he wished to go out alone. Strange, to tell, the far-

mer thought this attachment ominous of evil, and, in a moment of passion, killed the faithful companion.

The geese and the goose have been known to be excellent friends for a long time; the bird running the head in the fondest manner against that of the horse.

We all know that most of the women family have an attachment for the geese. As a case in point we give the following amusing anecdote:

During the early part of the late war, in the year 1861, shortly after our army moved from Washington out beyond Arlington, Levi S. Chasfield, of New York, went over at what some time ago was named, when the following incident of the movement was related to him: As they went along on their way over, some of the soldiers stepped out of the ranks and "condemned" a couple of geese, and at the suggestion of an ingenious fellow, named "Sammy," one of the drummers borrowed his instrument and put the captured birds in. Shortly afterward the geese came along, and, noticing that the boy shifted his usual whacks, rode up to him and said, "Why don't you beat that drum?" "Coventry," said the startled musician, "I want to speak to you." The captain, grew still closer to him, and, holding down his head, said, "Well, what have you to say?" The drummer replied, "Well, I've got a couple of geese for you." The captain straightened up and gravely said, "Well, if you're sick and can't play, you needn't," and then rode on. It is needless to add that the colonel had roared geese that night.

In the United States, the common goose of Europe, in which the genders are white and the females gray, is the most numerous, and perhaps as profitable as any. The white Bremae goose is of larger size, handsome, and easily raised, but less prolific and hardy. The China, or chin-tchu goose, with its variety, the Gumed or African goose, is very large and swan-like; at maturity weighing fifty pounds per pair. A cross between the last and the Bremae bird, called sometimes the mountain goose, is highly prized for the table, and attains a weight of thirty-five or forty pounds a pair; it comes to maturity early, and can be reared in sixteen weeks to a weight of fourteen pounds, dressed. The Canada goose, is sometimes tamed, especially in northern and thinly settled localities; it mixes with the common goose, though of a different genus, and the mongrels, which are not prolific, are considered a great delicacy.

Extraordinary honors were paid to this bird in ancient times, and it is still held in great veneration by some of the Eastern nations. The figure that occurs so frequently in Buddhist monuments is the Brahmanee goose. The ancient Britons, according to Caesar, held it impious to eat their flesh.

The goose is a very long lived bird—its age having been known to reach one hundred years. It is probable that many wild species, in different parts of the world, might, by a little care, be brought into a state of domestication, and thus increase the number of these useful servants of man.

The Soldiers' Dogs.

Not long since a dog named "Touton" came to Paris with a regiment of Zouaves which had returned from Italy. The soldiers were all greatly attached to him, for he had passed safely through a singular adventure which deprived them of all other dogs belonging to the regiment. When the war commenced the Zouaves embarked for Genoa; but as they were going on board the ship, they saw a formal order forbidding the entrance of all dogs upon the vessel. As they were very much attached to their dogs, they were stricken with grief. It was not easy to deceive the sharp lookout kept, for every soldier advanced along the narrow gangway, one by one, as his name was called. Necessity is the mother of invention. The drummers unscrewed their drums, and the best dogs of the regiment were concealed in the drums, which were screwed up again. When regiments embark, no music is played, but on this occasion the colonel determined there should be music. He ordered the trumpets and drums to take the head of the column, and to play a lively tune. The face of the drummers—every one of whom had a dog in his drum—grew very long! The trumpets sounded; the drums were all silent. The colonel got angry and bawled to know why the drums did not beat. There was but one thing to do and that was to beat. The moment the drums began to beat, innumerable dogs began to howl and to bay, to the astonishment of everybody but the Zouaves. Everybody looked right, left, backward, forward—no sign of a dog anywhere; and yet, the more the drummers beat, the more the dogs howled. At last a spaniel fell out of a drum, rolled over and over on the ground, got up and took to his heels, howling louder than ever. Roars of laughter greeted this explanation of the mysterious howls. The drummers were then ordered to advance on board, one by one, and each to roll the drum as he came. If a barking was heard, the drum was unscrewed, and the dog put ashore. Only one dog got on board; this was Touton, who kept quiet through all the rolling.

The Strange Experience of a Minister.

We take the following statement from Lossing's Field Book of the Revolution, it being known as an historical fact:—Almost beneath the spot where I stood under the middle aisle of the church (Freehold, N. J.), rest the remains of Rev. William Tennent. On the right of the pulpit is a commemorative tablet, with the following inscription: "Sacred to the memory of the Reverend William Tennent, pastor of the First Presbyterian Church in Freehold, who departed this life the 8th day of March, 1777, aged 71 years and 9 months. He was pastor of said church forty-three years and six months. FAITHFUL AND BELOVED."

Mr. Tennent was one of the most faithful ministers of his day; and his name is widely known in connection with curious physiological and psychological phenomena, of which he was the subject. For three days he remained in a cataleptic state, commonly called *trance*, or apparent death of the body while the internal life is active. He had applied himself closely to theological studies, until his health suddenly gave way. He became emaciated, his life was despaired of, and one morning, while conversing with his brother in Latin, on the state of his soul, he fainted and seemed to expire.

He was laid out, and preparations were made for his funeral. His physician, who was absent, was much grieved on his return. His skill detected symptoms of life, and he desired a postponement of burial. The body was cold and stiff; there were no signs of life to the common apprehension, and his brother insisted that he should be buried. But the entreaties of his physician prevailed; the funeral was postponed. On the third day after his apparent death, the people were assembled to bury him. The doctor, who had been at his side from the beginning, still insisted upon applying restoratives.

The hour appointed for the burial arrived, and the brother of Tennent impatiently demanded that the funeral ceremonies should be performed. At that moment, to the alarm of all present, Mr. Tennent opened his eyes, gave a dreadful groan and relapsed again into apparent lifelessness. This movement was twice repeated after an interval of an hour, when life permanently remained, and the patient slowly recovered. Absolute forgetfulness of all knowledge marked his return to consciousness. He was totally ignorant of every transaction of his life previous to his sickness. He had to be taught reading, writing, and all things, as if he were a new-born child. At length he felt a sudden shock in his head, and from that moment his recollection was by degrees restored. These circumstances made a profound impression on the public mind, and became the theme of philosophical speculation and inquiry."

Mr. Tennent has left on record the following graphic account of his feelings while his body was in a state of catalepsy:

"While I was conversing with my brother on the state of my soul, and the fears I had entertained for my future welfare, I found myself, in an instant, in another state of existence, under the direction of a Supreme Being, who ordered me to follow him. I was accordingly wafted along, I know not how, till I beheld at a distance an ineffable glory, the impression of which on my mind it is impossible to communicate to mortal man.

I immediately reflected on my happy change, and thought, Well, blessed be God! I am saved at last, notwithstanding all my fears. I saw an innumerable host of happy beings surrounding the inexpressible glory, in acts of adoration and joyous worship; but I did not see any bodily shape or representation in the glorious appearance. I heard things unutterable. I heard their songs and hallelujahs of thanksgiving and praise with unspeakable rapture. I felt joy unutterable and full of glory.

I then applied to my conductor, and requested leave to join the happy throng; on which he tapped me on the shoulder and said, "You must return to the earth." This seemed like a sword through my heart. In an instant I recollect to have seen my brother standing before me disputing with the doctor.

The three days during which I had appeared lifeless seemed to me not more than ten or twenty minutes. The idea of returning to this world of sorrow and trouble gave me such a shock that I fainted repeatedly."

—*Life of William Tennent, by Elias Boudinot, L.L.D.*
Mr. Tennent said that for three years the ravishing sounds he had heard and the words that were uttered, were not out of his ears.

Notes in Tunis.

BY C. M. FALCONER.

There is a decided free-and-easy manner about the Tunisian soldier's way of doing sentry duty. During the day he divides his time between sleeping, sitting doing nothing, and knitting stockings. The latter practice which might be introduced among our own soldiers, since it would keep them out of much idleness and mischief, is not for the purpose of providing for their own wear, because they go barefoot, but to eke out their scanty pay. At night, as the fourteen public lights furnished by the English Gas Company are insufficient to illuminate the whole town, the soldiers can no longer see to knit stockings; so they philosophically roll themselves up and go to sleep. After the black hats and coats of Western Europe, the diversity of costume in Tunis is very attractive to the traveler, and it is well worth while to stand in any of the narrow streets and study the people as they pass, taking care, however, not to be knocked down by a camel, since these animals have an unpleasant knack of stealing unawares upon you with their cushioned feet.

The ladies, who have hidden away their charms behind black masks or richly diapered silk handkerchiefs are Moorish; the Jewish maidens, on the contrary, display their personal attractions in gorgeous apparel, including any amount of old embroidery. The Jews were once greatly persecuted here, but now hold most of the business of the town in their own hands, from the money-changers who sit at the street corners with small piles of copper piastres, to wholesale merchants and dealers.

The cake-seller proclaims his wares by a loud cry which startles the stranger from Europe; nor does the European stomach relish the oil or rancid butter which the said cakes contain, but they are quite to the taste of the ladies dressed in dark blue stuffs, fastened here and there with great brooches and pins. They are Bedouins, or country Arabs, and have probably come to town to fill their jars with the oil so much used in their cookery.

Many of the narrow streets being impassable for carts, porters are indispensable functionaries. They may be seen staggering under chests of drawers or iron bedsteads, when people are changing house; or sometimes carrying in their capacious baskets some Moslem who has broken the prophet's law by indulging in strong drink. As a rule, however, the Tunisians are an abstemious race.

The Road to Success.

The young man who thinks he can carry his boyish pranks into the serious business of life is not a man, and defrauds himself and his employer. "After work, play." That should satisfy the most sanguine. "Business before pleasure," is the motto of every prudent man whose guide is experience, and it is sufficient for the novice in active life.

But it is despicable to see the young man just starting in life so wedded to his former enjoyments as to place them above present duties. Yet this is often the case. The young man, who, to steer his own bark, launches forth on the sea of life, too often looks back on the pleasures he leaves behind, and, forgetful of present duties, steers back to past enjoyments. There is no royal road to success any more than to knowledge. He who would succeed must work; and after all there is more real enjoyment in work, which has a worthy object, than in play or pleasure, intended to kill time. We remarked a few days ago to a business man whose present means are amply sufficient, but who worked really harder than any of his employees, that he ought to "take it easy." Said he, "I am never so happy as when I have more than I can do. I may wear out in working, but I dread to rust out in idling." He was right. His work was a part of himself, a part of his life, and it was always faithfully done. To apprentices, especially this earnestness and interest in their work is necessary, if success is ever to be attained.

Or how many cheap, exquisite joys are these five senses the inlets! and who is he that can look on the beautiful scenes of the morning, lying in the freshness of the dew, and joyful light of the risen sun, and not be happy? Cannot God create another world many times more fair? and cast over it a mantle of light many times more lovely? and wash it with purer dew than ever dropped from the eyelids of the morning?

EDWARD IRVING.



The Knight and the Fair Ladye.

A gallant knight of the First Crusade,
A lion in battle was he.
And she with rarest beauty crowned,
A ladye of high degree.

Long had they loved with a love unknown,
In the days of chivalrie,
And many a doughty deed was done
For love of that fair ladye.

For thus doth the strongest passion move;
In the days of golden bands
Hearts whom a ruthless fate has thrown
In earth's far-distant lands.

Sir Hubert, wrought by his spirit, thus
To the Lady Constance spoke—
"In battle my arm hath proved its might,
And the spear and the lance hath broke:

"But never again in the tented field
Shall my helmet proud be seen,
If thy heart refuse my proffered love,
Mine own heart's love and queen!"

And he who had conquered oft in war
Was conquered now in love;
For their troth was plighted beneath the stam
Which gleamed in the vault above.

Once more to the East Sir Hubert went,
But soon as the strife was o'er,
Returned to claim the ladye fair—
His bride for evermore!"

Icelanders in Alaska.

A good use is at last found for this province. At first it seemed a huge elephant, incapable of doing service. Its arctic climate and perpetual rains presented no attraction for American emigrants. The seal fishery was the only magnet to draw enterprise.

But at last Alaska is winning a good class of citizens. The Icelanders take to it, as ducks take to water. Their own island is growing uninhabitable, less productive than in former years, and the people are suffering many hardships. They begin to see that emigration is a necessity, and Alaska is just such a home as they covet. Some of them settled in our western States, but found the climate too warm for them. They sent a delegation to examine Alaska, who reported enthusiastically in its favor; and it is probable that a large emigration will turn that way, both from our own country and from the ancient island. They will make excellent citizens, and develop the resources of this romantic territory.

Camphor.

BY JAMES P. DUFFY.

Camphor is a kind of essential oil in the form of a solid resin composed of different ingredients. Its appearance is that of a whitish substance, through which faint rays of light are emitted. It has a bitter spicy taste; is somewhat greasy to the feel, and is a great incentive to sweating.

The trees from which it is obtained are known as camphor-trees, and are found in China, Japan, Borneo, Ceylon and Sumatra; those of Borneo, however, seem to yield the best results.

In form, the trees generally possess a thick stem, with strong, close branches, and a brownish-colored bark. As the wood is soft and easily worked it is largely used for many purposes.

To obtain the camphor the tree is cut down and sawn in pieces, when the camphor may be observed near the centre in streams of whitish flakes. The pieces of wood are distilled with water, and the camphor passes into the receiver of the still, leaving the wood in a state which is utilized after being dried.

The following experiment will illustrate the difference between water and alcohol as solvents of this substance, which it may be here stated is very inflammable, being on this account much used for illuminating purposes:

Obtain a tall, narrow beaker capable of holding about one ounce. Place in it thirty-five grains of raw camphor and fit into the top of the beaker a long, conical cap, made of paper. Now obtain a strong ring of five or six inches diameter, and attach to it a rod fastened to a heavy iron foot, so that a vessel can be supported on the ring, and directly over a spirit-lamp. On the ring place a small, shallow pan (filled with dry sand), and insert the beaker with the paper cone arrangement into the sand. Now expose the bottom of the pan to the heat of the spirit lamp. In a short time the camphor will commence to boil, and its steam condense on the top part of the beaker in delicate crystals. In this experiment the sublimation of the camphor affords a beautiful instance of crystallization, the crystals being very often formed even on the paper cone.

Scrape the crystals from the sides of the beaker and the cone, and divide them into three parts; place one part in some clean water, and observe the manner in which it dissolves therein. It will be slowly, the camphor moving round a circle until dissolved.

Place a second portion into some alcohol; the camphor will immediately dissolve.

Obtain a clean brick, place the third part of camphor on it and light it. It will burn with a smoky blaze. The apparatus described with these experiments is known as the sand-bath, and is much used.

Camphor possesses many good qualities which render it useful to man. Its strong scent renders it valuable as preventive of the spread of contagious diseases, and its use for preserving articles from the ravages of moths is well known.

Explained.

Many people have been puzzled to decide why the dark wood so highly valued for furniture should be called rosewood. Its color certainly does not look much like a rose, so we must look for some other reason. Upon asking, we are told that when the tree is first cut the fresh wood possesses a very strong, rose-like fragrance, hence the name. There are half a dozen or more kinds of rosewood trees. The varieties are found in South America, and in the East Indies and neighboring islands. Sometimes the trees grow so large that planks four feet broad and ten in length can be cut from one of them. These broad planks are principally used to make the tops of pianofortes. When growing in the forest, the rosewood tree is remarkable for its beauty, but such is its value in manufactures as an ornamental wood that some of the forests where it once grew abundantly now have scarcely a single specimen. In Madras, the Government has prudently had great plantations of this tree set out in order to keep up the supply.

It is stated that 3,000 grains of oats have been produced from a single oat!

AUTUMN HAS COME AGAIN.

"It is sunset, and I am sitting on the gnarled trunk of a tree, near an old-fashioned country house. On one side are large trees—horse-chestnut, lime and beech. From these a golden shower of leaves come sloping down upon the lawn, as the gentlest breeze cannot now bend their stems without breaking them off. For leaves to flutter now is death, and they are falling, falling, falling from the trees, anon to rise again in new life.

"The golden shower has spotted the green grass with a thousand dots of yellow, red and brown, that shine like gems in the sunshine. They are more beautiful in death than in the full blood of summer strength, and suit the time, the day, the place. I like to see Mother Earth take again to her breast the life which she has sent up from her stores to clothe the trees in their summer dress." And though there are periods in her processes which seem simply bleak and desolate, she makes the change from the glory of summer to the barrenness of winter magnificently beautiful."

This Autumn day is bright and balmy—a golden halo bathes nature in loveliness. Apples bend the trees, wheat waves in the fields, birds call to each other, the swallows and blackbirds gather in great flocks and alight on the fences, evidently preparing for departure toward the south.

The warm days are going—soon the brook will cease its musical flowing between green banks. The Autumn bees are humming—soon all will be silent and still. Nature will change her rustling emerald and crimson robe for one of noiseless white. Each season is beautiful; but Autumn is especially brilliant and fascinating. Look at those gorgeous clouds in the west—the bright leaves of the maple trees mingled with the green and golden foliage to the right. See the reflection of gold in those windows. Can one conceive anything more splendid than this?

All about me hum, fly, buzz and crawl the inmates of the insect world, and watching them I wonder if in their own language these tiny creatures hold communication with each other. This part of animated nature, like every other, is eminently calculated to direct the mind to the great Creator. "If," says the ancient writer, Basil, "you speak of a fly, a gnat, or a bee, your conversation will be a sort of demonstration of His power whose hand formed them. He who has stretched out the heavens and dug up the bottom of the sea, is also He who has pierced a passage through the sting of the bee for the ejection of its poison." Nowhere, indeed, are we so called as in the contemplation of insects.

"To trace in Nature's most minute design
The signature and stamp of power divine;
Contrivance intricate express'd with ease,
Where unassisted sight no beauty sees;
The shapely limb and lubricated joint,
Within the small dimensions of a point;
Muscle and nerve miraculously spun,
His mighty work who speaks, and it is done!"

These thoughts absorb my attention, and as a long dark green worm, dotted with yellow, crawls slowly past at my feet, I think of the curious transformation it will soon undergo. Several weeks ago I found just such another on the apple tree at the back of the house, which was enclosed in a box, a piece of tarleton tied over it to prevent its escape, and at the same time supply it with air and light. It seemed quite torpid at the time of its imprisonment, being full grown. In a few days the worm began to gather itself into smaller dimensions, and one morning I found its yellow, spotted skin in one corner of the box, while a hard, cold, light brown object, hung suspended to the side by a silken thread which wound around the chrysalis, each end being attached firmly to the box. There it will probably remain all winter until the heat of spring warms it into life and activity. From this hard, apparently lifeless

shell will emerge a lovely butterfly, similar to that fluttering over yonder bed of petunias. An emblem of our own lives, which seemingly perish; but rejoice, O man of infirmities, for you shall yet live a more satisfying, beautiful, spiritual life beyond all the shadows and uncertainties of earth.

Ah, there is the dread of the farmer close by—a hairy caterpillar. It requires sound knowledge to prevent its ravages. Thus, in Germany, the gardeners and country people have been accustomed very industriously to gather large baskets full of a destructive cabbage moth, and then to bury them. Now this plan adopted in reference to our common cabbage caterpillar would succeed; while, in the present instance, it is just as if one should attempt to kill a crab by covering it with water; for many of the insects are full-grown, and ready to pass to their next state as they do underground, so that, instead of being destroyed by this maneuver, they actually appear again in the following year in greater numbers to destroy the crops of the hard-working farmer. "In the caterpillar there is a most capacious stomach, which, indeed fills a large portion of its body; but in the butterfly the stomach is diminished to a thread."

"As the 'blood is the life,' so it may be expected to appear, in some way or other, throughout animated nature. There is not, however, in all cases, a real circulation. If, for instance, the back of any smooth caterpillar, with a transparent skin, be attentively examined, an evident pulsation will be perceived, as though a fluid were pushed along a narrow tube, at regular intervals, toward the head. Dissection, too, has proved that most insects have such a tube, placed immediately under the skin, and furnished with numerous air vessels; and that this contains a fluid propelled in regular pulsations of from twenty to a hundred per minute, varying as the weather is colder or warmer. This vessel Kirby describes as the 'first step toward a heart.' The fluid it contains is very abundant; in the insect it resembles water; when collected in drops it becomes more or less yellow, and even orange; but when examined under a microscope it appears filled with a prodigious number of transparent globules of incredible minuteness. The dispersion of this fluid appears to be universal, so that all the parts and organs contain it in a greater or less degree; and in many insects, if an antenna or leg be broken, a drop of fluid flows out at the wound. And the goodness of the Creator is manifest in the fact observed by Cuvier, that as the blood, for want of a circulating system, is not able to seek the air, the air goes to seek the blood."

That spider, however, there in the shrubbery has circulating vessels. Linnæus placed spiders and scorpions among insects; but later naturalists have formed of them a separate class of animals.

The heart of the spider is a long dorsal vessel, as in insects, but is supposed to be confined to the abdomen. On each side of the heart of the latter are vessels which may be assimilated to veins, while others cross them, and are the arteries. These creatures on being liberated from the egg, are perfectly formed, though very minute, and they do not, like insects, undergo transformations. All of them breathe through lungs, and hence their respiratory apparatus forms another ground for distinction. They are all predaceous, and live on small insects which they are able to overcome.

Some spin the webs which are the abhorrence of all tidy housekeepers, though it is deeply interesting to mark the progress of the structure. Who that has walked abroad on a fine autumnal morning, with his senses alive to Nature's thousand charms, can have failed to notice the threads and circular net of the garden spider, laden with pearly drops of dew, hanging in profusion on every bush, and noticing, can have failed to reflect on Him who has taught

"The wild bird to build its nest,
The insect weave its web?"

"And what a wide range all the insects have for food. The vegetable kingdom presents to them a vast field, while the larger animals are limited to a comparatively small portion. Separate the grasses, and a few herbs and shrubs, and of the thousands of plants which cover the face of the earth, the rest are disgusting to them, or absolutely poisonous. Yet how

plenteous is the feast to which the insect tribes are invited. From the gigantic banyan, which covers acres with its shade, the tiny fungus, which the eye can scarcely perceive, there is one immense banquet of which they may partake. It is probable that not a single plant exists, even of those which to others are most nauseous and poisonous, that does not yield to some insect or other delicious food.

"The World before the Deluge" contemplates a period in the earth's history when its natural ornament was absent; when its surface was an arid desert—a vast solitude—the abode of silence and death. Plants preceded animals in the order of creation, when the great animals which preceded man were created by the wisdom of the Eternal, the earth was already clothed in a mantle of vegetation."

We learn from Holy Scripture that God said: "Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself upon the earth; and it was so. And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose fruit was in itself, after his kind; and God saw that it was good." (Genesis, i., II., 12.)

Yes, it was good; for plants are at once the ornaments of the earth and the means of existence—besides furnishing remedies to restore lost health to the beings which occupy it; and in what a wonderful manner the goodness of the Creator has diversified this natural ornament, so that no part of the globe can be said to be deprived of it; and as a natural consequence, plants have been the theme of great writers in all ages. "Homer has sung their praise; Hesiod, Theocritus, Lucretius, Virgil, Horace and Claudius, among the Latins, have described them, and poets of all countries have been inspired by them. Infancy loves flowers, they are charming to the young, and in more advanced years we salute them for the remembrance they awaken—perhaps for graver reasons; for who can watch the annual return of the leaves and flowers and green herbage of spring without wonder and astonishment?"

"The design of the Creator seems to have been to embellish and make beautiful all which was to be exposed to our eyes, while that which was to be hidden was left destitute of grace and beauty. Leaves suspended from their branches balance themselves gracefully in the breathing air; the stems, branches and flowers are the ornament of the landscape, and satisfy the eye with their beauty; but the root is without colors or brilliancy, and is generally of a dull, uniform brown, and performs in obscurity functions as important as those of stem, branches, leaves or flowers. Yet how vast the difference between the verdant top of a tree, which rises graceful and elegant into middle air—not to speak of the flower it bears—and the coarse mass of its roots, divided into tortuous branches, without harmony, without symmetry, and forming a tangled, disordered mass! These organs, so little favored in their appearance, have, however, very important functions in the order of vegetable action, and we cannot but admire the roots, which by a marvelous faculty imbibe the liquids contained in the earth, and convey the nourishing fluid into the tubes of plants, enabling them to grow luxuriantly and bloom sweetly on every hand. Great oaks tower like giants

"Standing in their strength erect,
Defying the battled storm."

And the little Autumn flower, the harebell, on its slender stem, nods and bends gently in the breeze by my side. I gather a few of their bright bells from mother earth.

"Lo! the best flower of autumn's prime
The harebell, which the year
Gives last to glad a darksome time,
And warn us worse is near,

By chalky bank, near rustling beek,
Or at the cornfields' edge,
Each waste its azure blossoms fleck,
Or gleam beneath the edge."

But soon the frosts will come and no green leaf or pretty flower will smile upon us amid the desolation of winter; but we know that the roots will be nurtured and kept warm by a soft colorless robe until Spring melt it away, and invite all this beauty forth again in renewed loveliness. Then let us sing:

"O! what if the snows are white and cold,
And the summer's bloom is over?
O! what if the roses blush no more,
And the frost has killed the clover?"

"Let us turn to the winter a smiling face,
And welcome the pale new comer;
Isn't love as deep, isn't life as sweet,
As it was in the by-gone summer?"

A Living Bridge.

There was a little courtyard, in one of the suburbs of a large city in France, round which were such very high houses that the sun could never be seen there, even on the brightest days of summer. In these houses dwelt at least thirty families, much crowded together. The court was so narrow that a carriage could scarcely drive through it, and that four men abreast could hardly find marching room

It was night, and all had retired to rest, weary with the hard work of the day; even the children, who had been selling newspapers and lucifer-matches in the street, had in their sound sleep forgotten both hunger and cold, and thought not of the sorrows of the coming day.

In the midst of this dark night, there was a terrible cry, "Fire! Fire!" All in the house had awoke, and in a moment were on their legs; faces pale with terror appeared at the windows, and the narrow court was filled with men who saw the conflagration with horror, and had made several vain attempts to extinguish it; it was impossible to get a fire-engine through the narrow passage which led up to the court. Already large red flames were rising from the old house, the staircases and inner walls were being consumed, and every now and then fell in with a crash. The people hoped that every one in the house had escaped, but now a child's voice was heard from the highest window with a shrill cry, "Oh! father, save me."

But there was no one there who knew how to help or to save; the women sobbed, the men wrung their hands, for it seemed as if the little one up there must perish without an attempt to help him. At this moment a tall, strong man advanced, and looking up at the fire he exclaimed, "Where are my boys? where is William? where is John?"

Instead of any answer, he hears a cry of agony proceeding from the house. The father knows at once from whom it comes; he rushes into the house, but at that very moment the staircase falls with a crash; a ladder is nowhere to be found in the court.

Utterly appalled, the poor father stands there not knowing what to do. But then the cry is again heard from the flames, "Father! father! save me." Then an idea seized him; he rushed into the house which stood opposite to the burning one in the courtyard, and hurrying up the stairs which here were not yet burning, he reached the room which was opposite to that in which his children were. Then he tore out the window and its wood work, and with a bold jump he sprang into the opposite room, where he seized the children, half dead with terror, into his arms. But not a moment is to be lost, what shall he do now? With both his children in his arms it is impossible for him to spring across again, he will not leave either of them for a moment behind him. Neither can he venture to throw them over into the opposite room, where there is no one to catch them in their arms. He stands on the window-ledge, and with wonderful skill he manages to stretch across from one window to the other, here holding on firmly with his feet, there with his hands, so as to form a bridge with his body. Now he calls out to his lads, "John, my boy, you can trust your father, can't you?"

"Yes, father," replies the child, with tears.

"Well then, go across on my back. Don't be afraid, but do exactly what I tell you. Make haste! trust in me."

The boy, terrified as he was, knew that he could trust his good, brave father, so he boldly placed his foot upon him, and went with slow but certain steps across into the other house.

"And now, you, William; you have only got one minute," cries the father to the elder boy; the flames had already penetrated into the room, and smoke and heat were about to take away his breath. But William, too, full of love and confidence, made the venture, and hastened over the living bridge formed by his father's body into the room, where he is safe.

The bystanders when they saw this, burst out into cries of joy, but then they asked themselves how the father would be able to save himself after he had saved his children. If he withdrew his hands he must fall down, and he could not return—the flames now burst forth out of the window, his head and arms were scorched by them. He could only cry out once more, "I commend you to God, John! I commend you to God, William! God bless you both!" and then he fell down to the pavement of the street, and when they took him up the noble father was dead.

The rays of heat are more readily absorbed when they fall upon bodies at angles near the perpendicular, hence the rays of the sun are hotter in summer than in winter, when they are more oblique.

A Wonderful Dog.

There are few travelers on the Harlem Railroad who have not heard of the educated dog at Scarsdale depot. His name is Knapp. He is the property of George Ullman, the Station Master. Knapp is a shepherd dog, about two feet high, and is covered with a dark brown shaggy coat of fine hair. He was born in the Scotch highlands nearly four years ago. In his infancy Knapp was imported at considerable trouble by a gentleman of Scarsdale, who, being suddenly called to Europe shortly afterwards, gave him to Mr. Ullman. Noticing genius and intelligence in Knapp, Mr. Ullman began to train him. Now Knapp can perform many wonderful feats. He has been taught to assist his master in the performance of his duties around the depot. Knapp has learned to tell by the clock when a train is due; and at night, when the hands point to the proper hour, Knapp takes a lantern in his mouth and stands on the platform, with the light guiding the engineer to the stopping place. Knapp knows an express train from a mail train, and a mail train from a way train. In day time, when an express train approaches the station and the track is clear, Knapp shows a white flag, which signifies all is well.

Not many days ago Knapp appeared with the white flag, as an express train hove in sight, but seeing two small children going down the wagon-road, ignorant of the approach of any train, he saw the children would reach the crossing simultaneously with the train. Knapp dropped the white flag, and, seizing the red flag in his mouth, he darted toward the crossing. The engineer saw the red flag and shut off the steam before the animal reached the children. Arrived at the crossing, he stood there and prevented the train from passing until the children were safely over the track, then he laid the flag down and the train went on.

On another occasion Knapp snatched a child from in front of a way train just as it was stopping at the depot. The child's clothing was torn by the wheels of the locomotive, so narrowly had it escaped death.

Knapp consults the clock every day for the arrival of the mail trains. A few moments before the mail is due, Knapp stations himself at the mail track, and, when the bag is thrown from the car, he carries it to the Post-office, and if it contains any letters for his master, he takes them back to him.

When freight trains begin to switch cars at the depot, Knapp always takes a red flag and trots up or down the track, as the case may be, and flags any train that heaves in sight. Knapp always keeps his position faithfully, until called in by signals. After the departure of freight trains, Knapp often walks down the track and carefully examines the switches to see that the brakemen have left them all right. Satisfied that no blunders have been made, he walks to the depot, and if the clock shows him that he has a few leisure moments, he signifies to his master a desire for a pipe. Mr. Ullman has taught him to smoke, and he always keeps Knapp's pipe ready for lighting when he calls for it. The pipe being lighted, the animal sits on a chair, and smokes with as much apparent ease and comfort as his master.

Mr. Ullman is a good musician. He has a piano in the ladies' room of the depot, and often performs on it. Knapp has been taught to sing or whine the tunes which Mr. Ullman plays. The dog often perches himself on a chair beside his master, with his fore feet on the piano frame, and accurately turns the sheets of music with his tongue. Knapp can waltz, dance a schottische or a polka, as well as any one can, on four legs.

Of late some of the mischievous brakemen have thrown snow-balls at Knapp, just as the trains started, or have made ugly faces, or stamped their feet at him. He seemingly took no notice of these insults. One of the brakemen went into the depot to get a drink of water, and when he started out Knapp stood in the door and would not allow him to move. He made a movement as though about to administer a kick, and Knapp opened his mouth and uttered a growl, which convinced the brakeman that such a proceeding would be dangerous. Knapp kept his prisoner in the room until the train had gone so far that the brakeman couldn't catch it, and then releasing him, Knapp walked away as unconcerned as though nothing unusual had occurred.

Since that time the brakemen have been exceedingly civil to Knapp, but he treats them with lofty indifference.

Magnesia.

About the beginning of the eighteenth century, a Roman canon exposed for sale at Rome a white powder, which he called Magnesia Alba, or white Magnesia, and stated that it would cure all diseases. He kept the method of preparing it a profound secret, but in 1707 Valentine announced a method by which a similar powder could be prepared, and in 1709 Slevogt discovered another method. The properties of this powder were, however, so little known, that most chemists continued to regard it as nothing more than a preparation of lime, until the year 1755, when Dr. Black published some admirable experiments, which explained its real nature. Magnesia exists abundantly in nature; it is found in sea water, and in various mineral springs in union with muriatic and sulphuric acid. Its chief locality is in that class of rocks called magnesian limestone when it is in union with lime. It is also found in some minerals, and its presence may generally be detected by the touch—a soapy feeling pertaining to most of them; indeed, one of these minerals has, on that account, obtained the name of soapstone.

An impure form of carbonate of magnesia is sometimes found native in Piedmont, Moravia, and in the East Indies. There are two kinds of magnesia used in medicine, common magnesia, or carbonate of magnesia, and calcinated magnesia. The chief medical use, is to neutralize the acid of the stomach, and to act as a gentle aperient. In small doses it is effectual in some cutaneous eruptions, especially in pimples about the chin, nose and forehead, which are symptomatic of acidity of the stomach.

The Marriage of Great Men.

Byron married Miss Millbank to get money to pay his debts. It turned out a bad shift.

Robert Burns married a farm-girl with whom he fell in love while they worked together in a plowed field. He was irregular in his life, and committed the most serious mistakes in conducting his domestic affairs, but at heart he was one of the noblest of men.

Milton married the daughter of a country squire, and lived with her but a short time. He was an austere literary recluse, while she was a rosy, romping country lass that could not endure the restraint imposed upon her; so they separated. Subsequently, however, she returned, and they lived tolerably happy together.

Queen Victoria and Prince Albert were cousins, and about the only example in the long line of English monarchs wherein the marital vows were sacredly observed and sincere affection existed.

Shakespeare loved and wedded a farmer's daughter. She was faithful to her vows, but we could hardly say the same of the bard himself. Like most of the great poets, he showed too little discrimination in bestowing his affections on the other sex.

Washington married a woman with two children. It is enough to say that she was worthy of him, and they lived together as married people should live—in perfect harmony with each other.

John Adams married the daughter of a Presbyterian clergyman. Her father objected on account of John being a lawyer. He had a bad opinion of the morals of the profession.

John Howard, the great philanthropist, married his nurse. She was altogether beneath him in social life and intellectual capacity, and, besides this, was fifty-two, while he was but twenty-five. He would not take "No" for an answer, and they were married and lived happily until she died, which occurred two years afterward.

Peter the Great, of Russia, married a peasant. She made an excellent wife and a sagacious Empress.

Humboldt married a poor girl because he loved her. Of course they were very happy.

It is not generally known that Andrew Jackson married a lady whose husband was still living. She was an uneducated but amiable woman, and was most devotedly attached to the old warrior and statesman.

John C. Calhoun married his cousin, and their children fortunately were neither diseased nor idiotic, but they do not evince the talent of the great State Rights advocate.

RICHES are apt to betray a man into arrogance.



CHILDREN AND FLOWERS.

BY ALEXANDER HUME.

'Tis a pleasant sight, in this world of ours,
To see how the children love the flowers:
They run to them with bustling feet,
As if in some more happy sphere
They had already met their dear,
And recognized their playmates sweet
With wondering pleasure here.

They love them, and they know not why;
The fields are all their treasury,
Stored to o'erflowing every one.
Like flow'rs they have no thought or care—
There is a sweet resemblance there—
Alike they blossom in the sun,
And drink the summer air.

Their young minds are not overcast
By carking memories of the past;
Nor is their future dimmed with doubt;
Enough for them that every spray
Bears an ambrosial freight to-day—
The butterflies that frisk about
Are not more blithe than they.

Amel ye woods and fields and flow'rs,
And birds that people all your bow'rs,
We loved ye when our years were few;
And, strangers now to field and lane,
Our weary hearts are often fain
To quit the turmoil, and renew
Our childish joys again.

Amber.

BY CAPTAIN CARNES.

Amber is found on the sea-coast of Eastern Prussia, and on the shores, and at the bottom of the Fresh and Curish Hoffs. It is fished for in the surf with nets, or dug up out of the sands, but the most successful method is to dredge for it at the bottom of the water. Formerly, amber was only procured by laboriously picking it up on the sea shore, but it has since been discovered that large amber fields exist from sixteen to thirty feet below the surface of the sea in a tertiary stratum. The digging up of amber yielded fair profits, but by the system of dredging, a Memel firm in one year obtained 17,500 pounds of amber. In 1863, the quantity collected by this method was nearly twice as large; in 1865, more dredging machines were in operation, and 50,000 pounds were raised; in 1866, the quantity increased to 75,000 pounds. The Prussian Government receives a certain sum for rent, and these, the firms which work the fields, have all the rest which they obtain. It is not possible

to know the exact amount of amber which is yearly obtained from the sea, as the fishermen slyly make off and sell small parcels of their own collecting.

The amber found at Memel is of excellent quantity; one large piece was found which weighed nearly five pounds, and was valued at about four hundred Prussian dollars. It is supposed that large fields of amber lie still undiscovered.

Forest Leaves.

We put a single forest leaf under the microscope, and dissect and examine it with scientific accuracy and thoroughness, and we find in many of the common species tens of thousands of pores entering into its structure. Some trees requiring the occupancy of less than a twentieth of an acre bear on their twigs and branches four or five acres of this marvelous leaf surface. A shelter belt of a few thousand acres of such trees standing to the windward of a city, or between it and some source of miasma, presents millions of acres of nature's apparatus for absorbing excess of moisture, and exhaling it at times when the opposite conditions prevail. It is an apparatus well adapted to contending with the unseen malarial enemies in the air which plant the seeds of disease and death broadcast and by the wholesale. An apparatus also which lays a potent though gentle hand on the "chill wind out of the sea," tempering both it and the fiery blasts which are its allies in scourging poor mortals with the most destructive extremes of temperature.

A Chinese Roger Bacon.

A Chinese scientist has established at Shanghai a scientific laboratory, which will strongly recall the famous workshop of Roger Bacon. With an extraordinary energy, in the possession of which he seems to differ greatly from the generality of his compatriots, this wise Celestial, after purchasing the apparatus merely, has taught himself photography. He has likewise studied medicine with a European doctor, and invented a new, and it is said very efficacious antidote for the opium habit. In his laboratory are electric bells, a printing press, and a large variety of ingenious philosophical apparatus, mainly of his own device and construction. The principal object of his investigations, however, is to find a way of printing Chinese books in movable type. With the aid of the machinery at the Presbyterian mission, he has already begun the manufacture of the matrices or moulds for the type, an immense undertaking when it is considered that, for each single sort or variety of characters, no less than 6,664 matrices are required. Moreover, there are over 20,000 Chinese characters. Each matrix must be cut from wood and electrotyped. It will require, it is said, fourteen years' work of the mission machinery to make 24,000 different characters. In the six years in which this benefactor of his race has been at work, he has produced 5,000 matrices of little characters and 6,000 of larger ones. With what he has already of small type, he has printed a little volume. He does not expect to live long enough to complete his immense task, and therefore is educating his children to the proper degree of skill in order that they may continue the undertaking.

A Famous Bed.

Perhaps the most famous bed in English history is the great bed of Ware, of Hertfordshire. Shakespeare alludes to it in "The Twelfth Night"—"Although the sheets were big enough for the Bed of Ware." Nothing is now known of the origin of the bed; but in Shakespeare's time it was in the manor-house at Ware, the residence of the Fanshaws. The bedstead is ten feet, nine inches in length, about the same in width and nine feet six inches in height. It is covered with a wooden canopy, supported by panelling at the head, and two massive posts at the foot of the bed. The entire framework is elaborately carved, and especially the panelling. The bedstead was transferred from Manor Park to one of the inns of Ware, where it became a popular object of pilgrimage. A few years ago it was purchased by the proprietors of the Eyre House, together with the tapestry and carved fittings belonging to the chamber in which it originally stood.

HE THAT cheats me once, shame fa' him; he that cheats me twice, shame fa' me.

THE FOOTPRINTS OF TIME.

Time is relentless. The pendulum swings back and forth marking the steady flight of the moments. The ticking of the clock is the blended music about the cradle and the dirge about the grave. Birth—death, is the language of the time-piece on the mantel. Amidst the laughing glow of the morning's blushes and the soft shadows of the evening twilight, amidst the bloom and fragrance of Springtime, and the solemn slumber of the Winter, over the altar and the bier, the pendulum vibrates with the same solemn steadiness—the clock ticks off the life of the seconds—time moves swiftly into the past and we move swiftly towards the future. The clock will not always tick—the pendulum will not always swing; its constant friction against the past and present

prattle—she hears it—smiles—then weeps—she hears only the echo of the darling's voice—the echo which never dies in a mother's heart. Time laid the little bud in the cradle—time bore it to the little grave among the flowers; time thrust a poignard into the mother's heart, and the wound will never heal. In the silence of the night it aches and bleeds as the mother dreams of her sleeping pet, and while the hands move in search of the absent one, the lips part, and in sweet, tender tones she sighs: "Baby." The old man goes back to the home of his childhood. He left it but yesterday, but oh, how changed. The vine that crept over the trellise at the door is dead; the trellise is gone. The arbor in the garden is a shapeless, uninviting mass of rubbish. There is the spot where the village pastor and the mother knelt forty years ago to ask God to bless the



"DO YOU DREAD DEATH, MY SON?"

will wear it out. By-and-by we will listen for its salutation to the coming moments, but it will speak not. Dumb and motionless as death! Like the heart of the dead the pendulum sleeps—sleeps in wakeless slumber; like the tomb, the old clock is speechless, and the abode of unending silence; like the stringless harp upon the wall, its labors are ended—its music is hushed—hushed forever.

But the flight of time goes on the same. It comes with its grey hairs, and scatters them through the raven locks of youth—with its yawning graves and open caskets—with its funeral trains and tear-floods—its disappointments and heart-aches. It leaves its footprints on the hearthstone, the garden, the homestead, the heart, the cheek. Mother looks into the cradle, but baby is not there; she listens for its merry

innocent boy who was going out into the world, from the sunshine of mother's love into the cold companionship of strangers, from among the flowers into the midst of brambles, from safety into danger. That boy comes back to-day. With wrinkled cheek and frosted brow he sits down upon the crumbling door-sill, and weeps. Mother is not there to greet him; she is dead. The old pastor is not there to shake him by the hand; he is dead. Father's voice is not heard among the hills; he is dead. The old man rises, and half forgetting that he is old, goes to "meet the boys," to see mother, father, and the old village pastor. Time does it all. It touches our lives and they go out; it touches the flowers and they wither; it kisses the granite and it crumbles; it kisses beauty and it fades; it steals over scepters and they rust; it flows over thrones and they totter.

The moments are faithful reapers—reapers for God. They come with messages from heaven—the decrees of

death; but not with these alone. Time is not entirely dreary in its flight. It fills the grave but it fills the eradle; it blights the rose, but it fringes the forest with golden beauty; it crumbles thrones, but it gives life to republics; it robs us of earth, but it gives us heaven; it raised the cross, but it burst open a locked paradise; it separates loving hearts, but it again unites them; it covers its own frowning wrecks with loveliness and bloom, and destroys but to beautify and ennoble.

This is the last day of the year 1876, and the stroke of the clock at midnight will herald the advent of its successor. Throughout the earth the grim reaper, Death, has mown his usual wide swath. Many of the beautiful, the gifted, and the brave, have trodden the dark valley over which droops the forbidden gloominess of his reign, since the dawn of 1876. Many households have been made desolate by the loss of loved ones, yet, nevertheless, we bid the Old Year farewell with somewhat of regret.

In the eloquent language of George D. Prentice, now deceased, uttered nearly a quarter of a century ago. The Old Year will vanish. From the highest summit of the Night, amid mourning shadows draped in white vapors, and the wild dirge of the winds, he will take his last leap with a shriek of triumph that will echo among the stars like the scream of an eagle through the dazzling peaks of the Alps. He will go. The glorious old prophet will prophesy to our fond hopes no more. He will sleep with his fathers in the pale cemetery of the Past, and asphodels will soon spring thick about his tomb. He will sleep the deep, still sleep that knows no dreams and no waking. And, oh! what myriads of tender hopes will sleep with him. We do not marvel that all hearts should melt in one soft, sweet wail of grief for the dear departed. He will lie low in a shroud of sweetest memories.

What a transcendent mystery is death! And how fraught with tears in even its gentlest and most beautiful forms! The perishing of a chosen flower, the decay of a cherished plant, the fading of a Summer cloud on which the eye and fancy have been riveted, the close of a bright day, brimming with enchanting experiences, the extinction of a meteor that blazes in the heavens for a moment and bursts brilliantly into nothing, the fleeting away of a sunbeam or of a shadow, the doom of any thing that attracts and fixes the soul, though for an instant, and then vanishes forever, is charged and full-laden with

"Thoughts that do often lie too deep for tears."

But if the bare conception of passing away is thus strangely impressive, how deeply mournful must be the passing away of an object robed in the loveliest associations, and lacerating, as it goes, the heart's rich and delicate affections. If death, in itself, is sad, how exquisitely sad it must be in all things else that are fair and blest. Such, and so deliciously mournful is the death of the vanishing Old Year.

Death, purely as such, is full of exquisite solemnity. The simple idea of the cessation of existence is one of the most sublime and touching that the soul can conceive.

If the departed father could return to the son in spirit, he might say: "Do you dread death, my son? Has life been so full of joy and pleasure to you that death still fills your mind with all the horrors of childhood? Listen to me awhile. I do not bring with me terror nor darkness, but quiet and lasting peace. What has the world been to you? In every portion of it is deceit and woe. One cannot live without meeting vicissitudes and misfortunes, and the end of all is decay, so come with me where all is peace."

But the lingering moments haste away and we feel not only that *something* is about to cease to be, but that a lamp of joy or beauty will soon go out in the clear gaze of men. We are raised in a twinkling to a sense of immeasurable and irreclaimable loss. We perceive, as if in the revelation of a glance, that another chaplet of pearls has slipped off the unclasped necklace of life and sunk irrecoverably into the depths of time—that another argosy has gone down on the shoreless sea

freighted with the overflowing wealth of human hearts—that a whole galaxy of beaming stars have shot, one after one, from their stations in the sky, and been quenched in the eternal wave—that a full anthem is lost from the majestic choral song of nature. Well, indeed, may all hearts blend in one soft plaint above the grave of a buried year, for much, oh, how much of the joy and beauty and sweet ventures of all hearts are buried with it.

Because of the decadence of the Old Year, we welcome the New. We greet it as the forerunner of a more genial and enlightened era in the history of mankind. A period in which national quarrels shall cease, and the apparently diverse interests of peoples be settled by friendly arbitration, instead of being decided by, the too often, unjust influence of physical superiority. We welcome it as a period bringing us yet nearer to the hoped-for Scriptural time when "the wolf also shall dwell with the lamb, and the leopard shall lie down with the kid; and the calf, and the young lion, and the fatling lie down together, and a little child shall lead them."

Sulphur.

BY JAS. P. DUFFY.

At the ordinary temperature of the air, sulphur is a brittle solid of a peculiar light yellow color; having neither smell or taste, excepting that when rubbed it emits a faint and peculiar smell. Most of the odors which in every-day life are referred to sulphur are really the odors of various compounds of sulphur, and are not given out by the element itself.

Sulphur occurs somewhat abundantly in nature, both in the free state and in combination with many other elements. Many ores of metals are sulphur compounds. Free sulphur is found generally in volcanic districts. Generally it is mixed with other substances, but it often forms distinct veins. At the present time about nine-tenths of the article comes from Sicily.

It is usually subjected to a rude purification at the place where it is found. This is done by distilling it in large earthenware pots, when the earthy matters, etc., sink to the bottom, leaving the pure sulphur on the top, whence it is removed by large dippers made of earthenware. Sometimes the sulphur is piled up in heaps, in kilns, and set on fire; a portion of the sulphur in burning furnishing the heat by which the rest of the sulphur is melted; the melted sulphur flows out from the mass and is collected in receivers.

Sulphur unites readily with oxygen at a comparatively low temperature. When heated in the air it takes fire at 250°, and burns with a peculiar blue light. The irritating, suffocating gas which is produced is called, when dissolved in water, *sulphurous acid*.

Sulphurous acid is much used for bleaching articles which would be injured were they bleached by the means used for calicoes, etc. The article to be bleached, such as a piece of silk, is first moistened with water, and then immersed in a solution of water and the sulphurous acid.

Sulphuretted hydrogen (hydrogen sulphide) is a colorless gas which smells like rotten eggs. It is prepared by treating iron sulphide with diluted muriatic acid. It is very inflammable, and burns with a blue flame. It is very poisonous and when respired it quickly proves fatal. It is therefore best when experimenting with it to operate where there is a free circulation of air.

Crystals of sulphur may be obtained as follows:—

Place a little brimstone in a small glass jar (Florence flask), and apply a gentle heat to it by means of a spirit lamp. The sulphur will rise to the top or cool side of the glass in a yellow-colored powder formed of very minute crystals.

To make moulds from coins: Melt some sulphur in a ladle, taking care not to overheat it. Pour this over any coin (except silver, which would be spoiled); first fixing the coin in a small pill box to prevent the sulphur running away. The coin should be first oiled to prevent the sulphur from adhering to its surface.—As an article of commerce, sulphur is largely imported for the manufacture of gun powder, lucifer matches, and as a medicinal agent. Its use in matches depends on the low temperature at which it takes fire. Being ignited by the burning phosphorus it burns until the less readily combustible wood is set on fire.

Burton and Brougham.

REMINISCENCES OF THE OLD CHAMBERS-ST. THEATRE, N.Y.

Burton and Brougham, the "busy B's," made a good deal of uproarious fun at the old Chambers street Theatre, New York City. Brougham's "speeches" in response to calls before the curtain were a source of great enjoyment to the frequenters of the old theatre, who were fond of a good hearty laugh now and then. They were very rambling, disjointed oratorical efforts; but they never failed to produce the intended result—a general laugh, under cover of which Mr. Brougham made his bow and disappeared behind the curtain.

It frequently happened, by accident or design, that Burton and Brougham, being called out together, simultaneously emerged from different sides of the curtain. Then there was a keen encounter of wits, hailed by uproarious laughter in the house. Brougham would endeavor to speak; Burton would interrupt him, and finally, using the nasal whine of *Aminadab Sleek*, appeal to the audience not to hear the wicked Brougham.

"Don't listen to him. He plays in the theatre. And he's an Irishman."

Burton was very fond of a little vulgarity occasionally. In "She Stoops to Conquer," when (as *Tony Lumpkin*) he led Mrs. Hardcastle on the wild-goose chase after Constance Neville and her lover, round and round the stage, he stopped her suddenly, and raising his foot as if to avoid stepping on something unpleasant, cried:

"Oh, take care, mammy! the cows have been here. The nasty creatures!"

He was fond of letting off a good round oath, too, when occasion presented itself. He was by no means chary of "damns." His audience tolerated this as an eccentricity of genius. It would not do for any one but Burton to indulge so freely in profanity before the Chambers street audience. Mr. Brougham, who was very popular, might perhaps have ventured something in that way; but I have never known him to pass the boundary of good taste in that regard.

When Mr. Brougham left Burton's theatre it was whispered before the curtain that Mr. Burton had no friendly feelings toward his old associate. The frequenters of the theatre were very fond of Brougham. They gave the palm of genius to Burton, but they loved Brougham as a man. Some time after Brougham's withdrawal from the Chambers Street Company, a farewell benefit was given to Mrs. Russell, who was to appear for the second time in the character of "The Wife," as Mrs. Hoey; and retiring from the stage to devote herself to domestic life. The play was "John Bull," Mr. Burton as *Job Thornbury*, Mr. Brougham as *Denis Bulgrudery*. The house was crowded from the footlights to the dome. Mr. Brougham's appearance on the stage was the signal for a perfect ovation. He was hailed with cheer after cheer. When Burton came on, and the two actors stood face to face, the cry went forth:

"Shake hands! Shake hands!"

Burton tried to go on with his part; but he was interrupted by a repetition of the cries. The actors stood silent, but the uproar in the house continued. Mr. Brougham then came forward, and characteristically spitting on his hand, held it forth to Burton, saying:

"Drop it there!"

Burton hung back and looked sternly at the audience. The cries of "Shake hands" redoubled. Burton saw that the house was determined to be obeyed, and he at last gave his hand—not with the very best grace. Brougham shook it with a will, amid the enthusiastic cheers of the spectators. The play went on. Burton was in no humor for gagging that evening. He played his part admirably, stuck to the text, and indulged in no fooling. When the curtain fell on the piece, Brougham was the first called out. He made one of his characteristic speeches, gave vent to his emotions on moving again among the "old familiar scenes," and retired from the stage amid shouts of laughter and applause. Burton was then called out. It was some time before he answered the call. He evidently did not relish a compliment *en second*. At last he appeared before the curtain. He moved with a stern dignity which did not fail to impress his audience. He bowed stiffly, and was about to withdraw immediately, when he was stopped by calls for a speech. In response to these calls he alluded to the separation between Mr. Brougham and himself. Mr. Brougham, he said, had thought he could do

better "on his own hook," and had a perfect right to try. He had heard with regret that Mr. Brougham had gone off the track a little, but he hoped that he should not burst his boiler, etc. Afterward Mrs. Russell was led before the curtain to make her adieu to the audience. A ring was presented to her by Mr. Burton, who made a very touching presentation speech, and amid cheers and waving of pocket handkerchiefs the actress bade farewell to the stage for a time.

That was an historic night. In the course of a rather nomadic life I have occasionally met on the plains of the far West, in the beautiful valley of the Indian Territory, on the llanos of New Mexico some lady or gentleman who was in the old Chambers street theatre on the never-to-be-forgotten occasion. Our presence there and then was a magic bond between us. It made us old friends in the first half hour of our acquaintance.

A Trip to the Sandwich Islands.

BY MATILDA TRAVERSE.

"All the fragrant air was tremulous with the sweet joys of life. The trilling of bird music and the hum of honey bees among the dewy flowers were woven through the sunny atmosphere like the rich warp and woof of some fine web."

Arriving after a very pleasant voyage at Honolulu, we sought the far-famed hospitality of mine host of the Hawaiian Hotel, and we found the advantages of cleanliness, comfort, and the general free and easy air that pervaded that institution had not been in the least overestimated. The hotel is a roomy structure, with numerous windows opening upon wide verandahs, seemingly built with a desire for coolness and comfort, rather than a display of costly architecture.

On the morning after our arrival, we arose betimes, and after partaking of a tempting breakfast, we started out to view the town. The Chinese, with their usual shrewdness, are fast monopolizing the different branches of business, and in almost any direction you may go, you will find the Mongolian has taken the precedence in trade.

The native quarter of the town reminded us of the Chinese quarters in San Francisco, only it was not quite so filthy, and the miserable specimens of humanity dwelling therein were not quite so densely packed in their wretched hovels. We explored the beautiful valleys, we bathed in the surf, picnicked in the generous shade of tropical trees, some of which are bread fruit, tamarind, algarotras, date-palm, fern-palm, cocoanut and bananas. We roamed the fragrant dell in search of botanical treasures, of which we procured an abundance of interesting specimens, or alpen-stock in hand, we would ascend some lofty mountain, from whose summit we would look down on a scene of surpassing beauty, an ever changing scene, where capricious nature now laughs joyously, casting a golden halo over everything by the brilliancy of her smile; then, as if by magic, a cloud obscures the fair scene, and pattering the raindrops fall; but the lovely bow of promise spans the emerald valley below, and we know that nature is still smiling through her tears.

We visited several large sugar plantations, which are near by, all owned by Americans, who are fast monopolizing the land, and the simple Kanakas are being reduced to a condition of abject slavery. They are paid for their labor or not, at the option of their employers, and their food is of the simplest kind and insufficient to sustain a healthy state of either the physical or mental system; and because of this, and their inordinate use of intoxicating liquors, the race is rapidly decimating.

We saw King Kalakaua, who did not strike us as a person capable of commanding the awe and reverence generally conceded to be due crowned heads; he seemed to us merely a well-bred gentleman. Queen Kapiolama is seemingly possessed of much amiability. She is extremely handsome, a fitting consort for the gentlemanly King.

Our time being limited, we reluctantly bade adieu

To these most beautiful isles,
Where Summer perpetually reigns—
E'en now a soft, dreamy languor
Steals over my senses again.
As memory once more recalls
Those fleeting, joy-laden hours,
Spent in listening to thrilling bird music,
Amid the sweet-scented, bright-tinted flowers.

THE AMERICAN LOVE OF FREEDOM.

A true American loves freedom. He likes liberty as broad as our rivers, as wide as the Western prairies, as free from restraint as the falls of Niagara, "a liberty larger than that which he can find within doors: for a house is a kingdom, and a crowded one at that. It has its laws, and he who breaks them must bear the penalties. It has its customs and usages, its proprieties, and a general order of proceedings as relating to its inmates, which are essential, doubtless, but which forbid a man's liberty. There are chairs for him to sit in, and sit in them he must. There is no chance for him to give his body and mind to recreation. He must drink out of a goblet, perhaps, when within him all the while is the wish that he might stretch himself at full length on the turf, and sink his lips and nose in the running stream. The house represents law, and in every man is a broad streak of lawlessness. A house represents tyranny of custom and habit, and there are times when a man feels like asserting what seems to him an inalienable right to do strange things—things out of the ordinary course—in short, to do what he has a mind to.

"The imp of the perverse," as the poet Poe styled it, "is a power with most of us, not always prompting the performance of disastrous deeds, like the inclination he cites to plunge into a cataract, or leap from a lofty height, to be sure; but continually manifesting his wicked little self in hints and suggestions of the supreme enjoyment of breaking away from all conventionalities, shaking off the irksomeness of domiciliary restraint, and embracing, to what extent is possible, the glorious freedom of primitive days." He urges upon us the pleasures in which the woods, and the fields, and the streams are so rich, as contrasted with the monotonous routine of every-day life: he keeps us humming how fine a thing it is to throw off the customs of society and to plunge at will outside of them—to seek pleasure in solitude or to do something outside of the every day routine of existence.

"The restraints which custom has pronounced wholesome become absolutely insupportable; submitting ourselves to the ways of the house we chafe in the collar; the set dinner becomes a bore, for we would dine *al fresco*; the company of philosophers and poets delight us not, for our model of a man has become of the Daniel Boone type; in fact, the nature that was born in us begins to dominate the ethics of society; we must do something out of the ordinary or stifle; unless the steam that is pent up within us finds a vent in the direction of our desires, we are in a fair way to behave in some decidedly *outré* fashion, or at least, to become most disagreeable members of any well-regulated family."

"Now, Mother Nature understands the freaks of her children. She understands the peculiarities of their temperament; what jollities, and rollicksomeness, and eccentricities, and vagaries of mood and feeling and conduct, belong to them, and she humors us in these directions. She lets a man lie down, or sit, as he pleases; stand on his head, or his feet roll over, or recline, as his mood is. She allows him the greatest liberty to do as he feels inclined. She never scolds one; she never frets; she never frowns; she never counts the proprieties, but allows him full and unrestrained exercise of those energies within him which bring pleasure." She gives him strength of body and mind; develops his muscles; gives his firm tread the suppleness of the panther. Her breezes wrap vigor round his frame; put fire in his eye; the glow of health o'er his countenance. City life enfeebles—its atmosphere is full of impurities—its restraint is irksome. It makes the body languid, weakens the muscles; makes delicate the man or woman designed by the Creator to be strong.

Our prosperity as a nation has been great. The vast,

natural wealth of our country gave us overflowing money coffers, and at one time we were in danger of being surfeited with luxury. Our young women led lives of indolence and courted delicacy of constitution; while our young men were becoming idly effeminate, lacking the sterling characteristics requisite to make the nation powerful among nations; while many of them led lives of ruinous dissipation. These things were a source of intense solicitude to the more experienced, who seemed unable to stem the tide of extravagance creeping into all our habits and modes of living.

But, "I think we have now passed through the danger which came to the youth of the country, by reason of excessive increase of riches; we are too young, as a people, to be effeminate." Our civilization is too fibrous, too pliant, too youthful, to tolerate punk at its heart, and juiceless bark for the covering; but there is no denying that, between the years 1840 and 1870, luxuries did produce degeneration; did introduce into this country a fictitiousness of character which would have been in perfect keeping with the last century of the Roman Empire, but which was entirely out of place in this young land. We have however recovered from the shock; we are sick of our own falseness to manhood and womanhood. The decade of idolized indolence in women, and effeminate foppiness in men has passed. Good healthy girls, with some flesh and weight to them are admired to-day. Men, with some length of limb and breadth of chest, characteristics of body and mind, which come from out-door sports and out-door labor, receive the suffrage of a popular admiration. We can remember when to be known as a lover of the rod and the rifle was to put one's self in a questionable position before the piety of the village. We can remember when rifle shooting was an amusement delegated to a class of inhabitants whose character and pursuits were questionable. We can remember when a fox-hunt in Connecticut was scarcely reputable to the well-to-do citizen, and trapping was something which a few mysterious vagabonds, that had their cabins in some out-of-the-way place in the town, were supposed to be providentially adapted for. We can remember when for a minister to have owned a \$1,000 Jersey cow, or to have raised a \$5,000 Duchess calf, or driven a horse a two-forty gait on the road, would have exposed him to the rebuke of his steady-going parishioners, and scandalized him through all the towns adjoining his parish. But this has changed. The old has passed away, and all things have become new. Men are adjusting themselves to a new state of things; they measure less by the technical and the artificial, and more by the natural. Now, nature is a great liberalizer of character. A man who lives out-doors may think wrongly, but he cannot think narrowly. Bigots are made by the education of schools; they are the moral fungi of libraries; they are creations of the technical and the arbitrary. Nature is tolerant and charitable, and suave with the suavity of true kindness. She is, moreover, thoroughly good-natured, and good nature is the bane of Phariseism. Phariseism never laughs, never jokes, never has its ribs tickled into merriment by the sly fingers of fun-provoking incident. Nature is never suspicious, never mean, never persecuting. Her sun shines on the evil and the good with the same infinite cheeriness. Her rain falls on the just and unjust with the same benevolent largeness. Her charities are those of a heart which feels that its duty is to love, and its mission to bless."

It is to be regretted that many of our young people are so anxious to forsake the dear old farm for the confinements of city life. Its outside glitter and promise are fascinating, and some do succeed in wrestling with fortune in its busy marts of trade; but, where one thus mounts the ladder of success, thousands struggle amid the crowd, jostled, snubbed, and defeated in every attempt. After all the high hopes when leaving the home on the hill-side, they, broken down and discouraged at middle age, find themselves occupying a few rooms in some tenement house; glad to get food to sustain life, and this is the fate of the majority. Who would leave the sweet odors, the balmy breezes, the freedom and enjoyment of country life for this? Boys, cling to the farm; develop its resources; fertilize its soil, and give it all your youthful energy, it will amply repay your efforts. Don't give up a sure living for a very doubtful one.

The importance of this subject crowds upon me when I am in New England. What used to be a very garden for thrift and enterprise, is filled with great uncultivated, neglected farms. It seems to be the prevailing opinion that farming is no longer successful there; those who can, go West; those who remain seem to cultivate only enough land to supply a living. Now, I think something ought to be done for New England, the birthplace of the Liberty of our country. Her fields should teem with richness, and her barns and store-houses overflow with the great harvest from her generous bosom. The land is not run out; or at least, it only needs labor and cultivation to change the entire aspect of her spreading meadows and dotted fields.

To show what can be done in this direction, I will specify one example that came to my personal notice. There was in Manchester, Conn., several years ago, a tract of land, including several large farms said to be worn out and useless. The fences were broken down; and I remember well, that of the unpainted, windowless, dilapidated dwelling-houses that stood alone untenanted. Nature in her lavishness, as if desirous of hiding man's neglect, had grown all over one side a vine, and on the other, great bushes of the purple lilac threw their fragrance every spring through the broken window panes into every deserted room, and peeped in at the upper story windows lovingly.

At the rear, the shell of a barn tried to keep its tottering foundation; while beyond spread hundreds of acres of barren sandy meadow-land. One day, a German who had newly landed, with a little money, to seek and found a home in the new country, stopped in front of the neglected place, entered and surveyed the ground, and finally sought to buy it, which he did for a trifling sum. Soon he came with his own and several other families, altogether about fifty persons, who settled on this and the adjoining farms. Men, women, boys and girls at once commenced to draw in their German hand-carts, the decayed leaves from the adjacent woods and from all directions for miles around. These was spread over the barren soil, and in addition, whatever they could get to use as fertilizers. In a year or two their labors told—the poor, neglected faces of the old farm lands smiled in return for being fed. The land had been starved to death. For years it had yielded great crops, receiving no nourishment in return. When its natural nutriment was exhausted, it was abandoned and left to go to waste, with all its wealth of meadow and rolling hill-side, left uncultivated and useless. Now the Germans tilled and fed the famished soil, worked early and late, and abundant harvests were the result. A ready market was found in Hartford, and the large number of the employees at "Cheney's Silk Mills," not far distant, also proved good customers. That rejected farm district became the finest and most profitable investment for the Germans, and the most fertile and productive land in Connecticut. I may say in New England; and remains in a high state of cultivation still, under the German management.

I, several years ago bought a place at the mouth of the Connecticut river; the soil was sandy loam, in a very impoverished condition. Corn grew about two feet in height, but would not produce an ear of corn.

For years the people living there had tried to cultivate a row of currant bushes, but without success. It was starved to death; had given continually of its life without being fed, until it had no nourishment to give. I fed it well; brought seaweed from the shore, saved every potato paring; every drop of soap-suds from the kitchen, made a compost heap at one end, carted everything to it during the year, and in the spring spaded it liberally into the soil. Now, turn it over with a spade and great angle worms squirm and writhe in the rich loam. Such a garden as it is now for profusion is a rarity. Vegetables of all descriptions, great luscious strawberries hide under tender leaves, currant and gooseberry bushes are loaded down with fruit, and my garden is alive. I have not allowed it to starve.

I tell you it pays to till the soil, and New England ought to be a very garden of luxuriant vegetation. Let the young men put their muscle and youthful energy into this branch of industry, instead of seeking in the overcrowded city a success in whose pursuit, thousands, yes tens of thousands, have toiled and thrown away their lives to obtain without reward. Left the untrammelled life of remunerative industry their fathers' led, for disaster and failure.

It is a man's natural avocation to till the soil. "In all the world of Nature there is nothing, I think, that can suggest to our minds, more good and useful thoughts than a field of corn, ripening in the summer sun;" and it is so with all growing things.

I want the youthful readers of the GROWING WORLD to learn to find intense enjoyment in Nature, who will never prove a treacherous friend. Tilling the soil is one of the most honorable and desirable pursuits vouchsafed to mankind; while he "who has conducted, with ability and discretion, a breeding farm, may be said to have received a liberal education. His knowledge, not only of markets, of local causes that affect sales, of influences general and personal which enhance values, of men and society as they exist, subject to prejudices, and potentially influenced by passion, must be ample beyond what most men's is; but he must also have been a patient and reverent student of the laws which underlie the propagation of animals, of the influences which act and re-act

upon the embryo life, and of the origin of impressions while the life is yet in the germ, which, being received, mar or make the destiny of the offspring. Looked at in a large, philosophic way, from a point of view which shows us the possibilities of endeavor, it is safe to lay it down as a rule that no coarse, vulgar, irreverent man will ever attain in the products of his enterprise the finest possible results of breeding. The mystic thread which will guide us breeders through and out of the labyrinth of speculation in which we are all now groping, is too fine and silken to be interpreted to the touch of a coarse finger. He who finally, feeling around in the dark, finds it, will be one whose hand feels for the face of the first cause of life, as a blind mother feels for the face of her babe. "The brutish man," says the good book, "knoweth not God." And, certainly, God exists nowhere in more wonderful expression, both in power and beauty, than when we see him, with reverent eyes, presiding at the birth of things, and stretching the guardianship of his presence over the cradle in which all young lives may be said to be rocked.

It is in these honorable and interesting employments, as truly as in the sports and amusements of the out-door world, that men will ultimately find that happiness, and that profit, which their natures crave and the circumstances of their lives require.

For the last fifty years the tide of popular movement has set with eddying swiftness towards the cities. We Americans are city builders, as the Egyptians were before us; but the time will come, and I think already is, when the tendency shall be checked, when the charms of the city and the country shall be rationally compared, and their relative values accurately perceived."

The Poet stood in the sombre town,
And spake to his heart, and said—
O weary prison, devised by man!
O seasonless place, and dead!
His heart was sad, for afar he heard
The sound of the Spring's light tread.

He thought he saw in the pearly East
The pale March sun arise,
The happy housewife beneath the thatch,
With hand above her eyes,
Look out to the cawing rooks, that build
So near to the quiet skies.

Out of the smoke, and noise, and sin,
The heart of the Poet cried—
O God! but to be Thy laborer there,
On the gentle hill's green side!
To leave the struggle of want and wealth,
And the battle of lust and pride!

He bent his ear, and he heard afar
The growing of tender things,
And his heart broke forth with the travelling earth,
And shook with the tremulous wings
Of sweet brown birds that have never known
The dirge of the city's sins.

And later, when all the earth was green
As the Garden of the Lord,
Primroses opening their innocent face,
Cowslips scattered abroad,
Blue-bells mimicking Summer skies,
And the song of the thrush outpoured—

The changeless days were sad to him
That the Poet's heart beat strong,
And he struggled as some poor caged lark,
And he cried, "How long, how long?
I have missed a Spring I can never see,
And the singing of birds is gone!"

But when the time of the roses came,
And the nightingale hushed her lay
The Poet, still in the dusty town,
Went quietly on his way—
A poorer poet by just one Spring,
And a richer man by suffering.

Water-Dust.

Clouds have been very neatly called masses of "water-dust." In them the condensation of the vapor into water is complete; but the particles are so minute that they float on the air. When, however, numbers of them coalesce, the drops become too heavy to float, and they fall as rain. It is generally believed that loss of heat brings this about, and the commonest observers have noticed that the downpour almost invariably increases after every discharge of lightning. If this becomes well established, it may lead to the fitting up of apparatus for discharging the electricity of rain-clouds, and thus making them, by the loss of their heat, give us rain on demand. This speculation need not disturb the faith of those who pray for rain. The Almighty still sends the clouds.



CROSSING THE STREAM.

Across a mountain streamlet wild,
A mountain maiden bore a child;
How lovely 'mid the ruffling air
His glistening locks of golden hair,
And cheeks and eyes as morning fair!

The stones are sharp—the brooklet deep—
The murmuring eddies foam and leap—
A shade comes o'er the baby face,
The shade of fear—'Oh! Sister Grace,
The water frights me when I look,
So rough the waves—so deep the brook.'

A kiss the smiling sister gave:
'Then look not, darling, on the wave;
The daisy and the buttercup
Beside the water—they look up—
And though it wets them root and stem,
The water never frightens them;
So don't look down, my little love,
Hold fast to me, and look above.'

The child looks upward to the sky
With childhood's sweet docility,
And there he sees the sky-lark soar,
Still chanting round the hill-tops hoar;
And joyful, in the joyful strain,
Gives back his sister's laugh again,
Till safely borne the torrent o'er
He hears the murmuring wave no more.

The dearest portion life can give
Is like such little ones to live;
The love we see to trust and prize,
To reach the unseen by heavenward eyes.
For Christ will bear when floods o'erflow,
His own through every wave or woe,
To walk at last in heavenly light,
'Mid homes of joy and pastures bright,
And dwell, 'dear children,' in His sight.

BEATA FRANCIS.

Good nature is the best feature in the finest face. Wit may raise admiration, judgment may command respect, and knowledge attention. Beauty may inflame the heart with love, but good nature has a more powerful effect; it adds a thousand attractions to the charms of beauty, and gives an air of beneficence to the most homely face.

More Profitable than Diamonds.

A nobleman had been showing his costly jewels to a friend, expatiating on their beauty and richness, and telling him the vast sum these precious stones had cost. "And yet," he added, "though their value is so great they yield me no income."

It was idle riches which gave back no returns except the simple satisfaction of possessing, and the pleasure they might give to the eye. But familiarity soon makes one indifferent to the former, and the eye is very quickly satisfied with seeing.

"Come with me," said the friend, "and I will show you two stones that cost me but ten dollars, but they yield me over two hundred dollars every year."

Curious to see such valuable gems, the nobleman walked with him to the banks of a stream, and entering a structure near at hand, a pair of industrious millstones were pointed out which yielded more returns than all his diamonds.

It is the working money of the world that is of real value in it. The hoarded money might just as well be hoarded pebbles for all the good it does its possessor. How much good a single dollar may do in a day if kept rustling about from hand to hand. Here it will pay the washerwoman's bill, then she can pay her week's rent. The landlord can pass it on to his grocer; the grocer will give it in change to a poor man who pays for his sack of meal, and so on through the day, until that single dollar may have done the work of ten dollars.

Young people should early learn the lesson of "spending well," as well as "saving well." It is quite as important to learn to make a wise investment of money as to learn to save it. Dr. Franklin gives a good suggestion to all when he says, "He that empties his purse into his head makes an investment of which nothing can rob him."

Sulphuric Acid, or Oil of Vitriol.

BY JAS. P. DUFFY.

Sulphuric acid is a liquid well known in the arts and commerce. It is one of the most important products of chemistry, as by means of it the chemist, either directly or indirectly prepares almost everything with which he has to deal. It is made in enormous quantities, its source being the combustion of sulphur, which may be in the ordinary state, or as produced from iron and copper pyrites. The manufacture of it has become of the highest importance, as it is largely employed in producing the soda of commerce, and in bleaching and calico printing. The process depends on the mutual action of sulphurous acid, the vapor of steam, and the steam from water. The sulphurous acid, produced by the slow combustion of the sulphur, is allowed together with the vapor of water, to meet that of nitric acid, produced in the usual manner, and being allowed to pass in at the same time. By these means the nitric acid is partly decomposed, and binoxide of nitrogen is produced. The latter seizes oxygen from the air and imparts it to the sulphurous acid; the sulphuric acid is the result of the latter operation.

The process is carried on in large leaden chambers, at the bottom of which water is placed, which condenses the acid fumes. The dilute acid thus afforded is afterwards concentrated by boiling, and when required pure, is subsequently distilled in platina stills, from which it issues as an oil-like substance, having considerable gravity. From this appearance, sulphuric acid is often called *oil of vitriol*.

At the ordinary temperature of the air sulphuric acid does not evaporate, but on the contrary, it increases in bulk by absorbing water from the air. In moist weather its bulk may increase to the extent of a quarter or more in the course of a single day, and, by longer exposure, a still greater quantity of water will be taken up; the acid should, therefore, always be kept in tightly-stopped bottles.

Sulphuric acid is intensely caustic and corrosive, and quickly chars and destroys most vegetable and animal substances. It was formerly prepared by distilling the salt now known as ferrous sulphate in earthen retorts. Ferrous sulphate was formerly called *green vitriol*, hence the origin of the name vitriol, which come to be applied to the common sulphuric acid. The acid thus obtained is a dense fuming liquid, now called "fuming sulphuric acid." A certain quantity of it is still made for dissolving indigo.

Camp Meetings.

Those who have never attended worship at these open air sanctuaries have missed a great deal in the religious phase of life. Several hundred square feet, usually forming a parallelogram, are set apart, in the center of which is erected a "stand" seventy or eighty feet square, with a white pine pulpit, and seats enough to accommodate a vast concourse of people. At a distance of fifteen or twenty yards on each side are erected a number of tents, which are occupied by families who move there temporarily, with servants, provisions, beds, and everything for the accommodation of themselves and friends. Funny little contrivances these latter, constructed, as they are sometimes, of canvass cloth, or unhewn plank set upright, and without chimneys. They make you think of an ordinary sized Indian village. You do not like the comparison, but the resemblance will thrust itself upon your mind, and on first approach, you involuntarily listen for the whoop of the red man, and when you see the blue curls of smoke rising from behind what seems to you a collection of wigwams, you are almost sure it arises from the fires used in the roasting of frogs, snakes, or wild animals. You instinctively hesitate about approaching nearer, but when you arrive, and see the white-haired ministers and disciples engaged in their devotion, all your fears for your scalp vanish.

Services continue from morning till night with only an intermission long enough to regale the appetite with mortal food. The sleeping accommodations in the female apartments consist of several mattresses placed upon a wooden frame the entire length of the room, with covering and pillows, and, in the male apartments, for beds are substituted straw or hay, over which are spread sheets, covering, etc., with or without pillows. The floors (or ground) are softly carpeted with straw. If you are a worldling, and take no part in the meeting, you go to sleep at night to the tune of the good sisters and brethren, who sit up till late at night shouting praises and hallelujahs either under the stand or in their respective tents. You sleep as sound as it is possible to sleep in a bed with fifteen or twenty, and scarcely turning distance between yourself and neighbor. The next morning you are aroused from slumber by what, on first awakening, you imagine to be the "seventh angel" sounding his trumpet, and start up with terror, till your companions come to your relief by informing you that the cause of your alarm was only the trumpet of the "chief of the committee of the grounds" calling the tent occupants to their early morning services.

You usually find active, industrious people at these camp-meetings, and long ere the sun streaks the east, the grounds are astir with men moving to and from the various springs where they perform their ablutions, while the housewives are busy superintending the cooking, which is performed on a large scale in the rear of the tents. The whole savors of camp life, and possesses a peculiar relish for those who like that mode of living.

Religious worship, if in spirit and in truth, is the same throughout the world, but the grove or campground seems a fitting place for divine services, and partakes somewhat of the nature of the sacred temples of the Pilgrim Fathers in this country about a century ago, or the mount from which the Savior uttered those blessed truths to his disciples who had followed him thither. The feelings of these humble seekers after the "Word" are wholly unrestrained, and they enter into spiritual enjoyments with a zest unknown to congregations who listen to well-written sermons read from velvet draped pulpits in magnificent church edifices.

Betrothals in Germany.

BY J. J. WORTENDYKE.

While travelling in Germany I arrived at Mentz just as the beau and belle of Mendrick—a town of several thousand inhabitants—became engaged to each other. It made as much sensation as if the town had burned down. As is usual, notice was immediately given to all the neighbors, and the next day the engaged pair commenced making calls in their new relation of bride and bridegroom. For you must know that when an engagement takes place, the gentleman is called the bridegroom and the lady the bride. The parties speak of each other always in this way.

When you meet the gentleman you inquire after his bride, as you inquire in America after his wife.

The next week, as is usual, a notice appeared in the Berlin papers to the effect that Max Beelitz and Johanna Hermann were engaged.

How it has come to pass that our English notions and practices in regard to these matters are objectionable, we do not know. The plan of keeping matrimonial engagements secret (happily going somewhat out of fashion) seems to us exceedingly wrong in itself and pernicious in its consequences.

Young persons ought not to appear in society in a false position. A lady secretly engaged may, without intending it, seriously occupy the attention and thoughts of another person to his injury, and perhaps to the injury of her companion. When a person no longer is at liberty to make or receive offers, it is wrong to appear at liberty. The practice diminishes the impression that ought to prevail of the sacredness of a matrimonial engagement; and thus leads, on the one hand, to hasty and ill-considered engagements, and on the other, as a natural consequence, to the violation of such pledges.

An engagement to marry ought to be considered as marriage itself. We mean what we say. Such an engagement cannot be rightly made, without such a state of the mind and affections as must often render its fulfillment essential to the well-being of one of the parties; nor can it be made, or at least long continued in many cases, without interfering seriously with other plans of life and prospects, which the parties might otherwise have embraced. The engagement ought to be considered as the solemn mutual avowal before God of a union for life. Were engagements always to be made public at once, and with such public sentiment respecting them, we would be rid of suits of breach of promise, sustained by circumstantial evidence, and often involving the exposure to scoff and ridicule of things that ought to be held sacred.

We add one other consideration which, though it may appear trifling when compared with the preceding, is yet important in itself. It is this: the temptation that a private engagement lays the parties, and sometimes their friends, under, to practice falsehood and deception. In fact, as remarked in the outset, the parties necessarily appear in a false position, which tends of itself to operate injuriously upon them. They are also tempted to the use of various arts of conduct and language to produce a false impression. This cannot be practiced without injury to that character of open truth and frankness which ought to be cherished.

Old Bones.

The fresher kind of shank bones serve for making the handles of knives, forks, and tooth-brushes. From some, gelatine is extracted. When not serviceable for these purposes, they are crushed into powder for manure. Farmers buy it in large quantities for fertilizing their fields. The importation of this convenient fertilizer from foreign countries is immense. Stories are told of battle-fields being plundered for the sake of the decaying bones of the soldiers who had fallen. Researches for the material of bone-dust are carried on upon a large scale in the ancient cemeteries and pyramids of Egypt. Long ago, when the people of that country mummified the bodies of their relations, and stowed them ceremoniously away in caverns, they were not aware that they were only preserving them for manure in a distant European island. A correspondent of the *Times*, writing from Alexandria, facetiously remarks: "Fancy mutton fattened on ancient Egyptians! The other day, at Sakahara, I saw nine camels pacing down from the mummy pits to the bank of the river, laden with nets, in which were femora, tibiae, and other bony bits of the human form, some two hundred weight in each net on each side of the camel. Among the pits there were people busily engaged in searching out, sifting, and sorting out the bones which almost crust the ground. On inquiry I learned that the cargoes with which the camels were laden would be sent down to Alexandria, and thence be shipped to English manure manufacturers. It is a strange fate, to have one's bones preserved for thousands of years in order that there may be fine Southdowns and Cheviots in a distant land! But Egypt is always a place of wonders."

Learning by Experience.

Must we each and every one learn by our own experience? It is a reliable school, though sometimes a dear one. "Improvement," "Progression," yes, "Onward forever." We can realize no cessation of time, no end to our aspirations. Are we not living in an age of extremes? Yes, so extreme that life is robbed largely of its own natural rounding up, and dwarfs in mind and body take the place of what should have been intellectually bright, and strong, and beautiful in form.

A professor says to his students—"If you would be successful learn to make haste slowly." Is this the course universally pursued? Alas! quite the reverse. Is it fancy, or are the words we hear the admonition of wisdom, admonishing us not to crowd, but to be patient? If you have a duty to perform (and you always have), give it time; do not work hastily or incessantly, beyond strength of mind or body. Many a valuable production has failed completion thereby, many a needed work has fallen into ruins; never reached a point of usefulness, solely through injudicious use and distribution of time. How often do we hear the reflection, "The youths of to-day do little else than run to school." Does this infer that our children are idlers, while our educational halls are becoming the veriest "workhouses" in the land? when proper rest and recreation are abandoned, and the midnight lamp kept burning, to eke out the day that has become quite too short wherein to complete the allotted task?

Parents, do you ever take note of the white lily cheeks of the pale, far-off eyes that seem to look from other spheres; the sweet lips that seem so mute and dumb; and do you ever ask yourself why this change? Yes, many parents know that it is the ambitious soul, the fire within that is consuming the once lithe and rosy form—the indomitable will to achieve knowledge, that would pull down the stars and lay them at their feet; upheave old ocean to unlock her mysteries and cast upon the insignificance of this one little mite of dirt on which we live. Then, how very soon those atoms become commonplace, but stepping stones leading to other fields of investigation; mind, spirit, eternal duration, source, origin, author or first cause, until the young aspirants feel that they stand just without the vestibule of "divine wisdom" and even here demand to be "opened unto" and accorded scientific explanation.

Do we not teach our little ones to be respectful to those who serve them, yet permit them to neglect, wrong, and not unfrequently cause to be consigned to a premature grave the servant, the physical form that was given them to honor and protect, that it may be and remain a fit abiding place for the spirit through a long lease of years of earth life, while it harmoniously develops, and grows ripe and fitly fledged for other spheres? We feel that God is mocked and His wisdom set at naught when the physical body is abused, and the spiritual or intellectual extolled; and that it displays gross ignorance that we shall do well to consider as we come to realize, which we shall in the near future, how dependent soul or spirit is on matter.

Born a Poet.

BY CORA BELLE.

If there was ever a "poet born," it was Mrs. Hemans. Yet she did not on that account consider herself exempt from a necessity to labor hard and unceasingly to fit herself for her chosen calling. She was a hard student for years, even while the care of her five little sons was left solely upon her slender hands, which must provide also a maintenance for them. The notes to her poems, the mottoes above them, and her many beautiful translations, show how diligently she studied foreign tongues, thus acquiring a delicacy and felicity in expressions rarely equalled. The critics mention as one of the most marked peculiarities of her literary career, the astonishing progress revealed in her successive productions.

It was mainly by reading that she acquired this education of her powers. Reading with a purpose, and with a diligence which few scholars put on their severest studies. This is the kind of reading that tells. Meditate well over what is read, give yourself wholly to it, after having first assured yourself that the subject is worthy your attention.

It was the custom of Byron, when preparing his great works, to read some kindred work of the highest order

to excite his own vein by its pulses. His own imagination would often catch, by some electric spark, some mere hint in his author, and a whole train of thoughts be kindled by it.

Mrs. Hemans states that her thoughts had so long run in the harness of rhyme, that it was difficult for them to go in any other. Blank verse required much labor. Her sweet poems often ran chiming through her brain for days before she put them on paper.

Goethe's poetry flowed forth so easily it seemed almost to be improvised, rather than composed. The exercise of this poetic gift flowed forth richly and joyously, and almost involuntarily. He would so often lose a song and not be able to gather it up again, that he frequently rushed to his desk, and, without taking time to adjust a sheet, write diagonally from beginning to end without stirring from the spot. For this purpose he preferred a pencil to a pen, as there was no delay in using the latter. The gray goose shaft would sometimes distract his thoughts by its scratching and spluttering. A good fountain pen would have been a prize to him.

There are a great many would-be poetizers who fancy that to imitate some of the habits of genius will somehow make geniuses of them. Disappointment is their usual lot. An unappreciative public will not lend them its ears. It is a good rule a kind editor lays down—"Never write poetry when you can possibly help it."

The True Lady.

It is the duty of every woman to be a true lady. Brazen boldness is a thing which girls cannot afford to practice. Wildness of manner and an open defiance of all those wholesome laws which have made woman's name illustrious both in sacred and profane history from the beginning of time, are no more becoming in girls and "young ladies," so-called, than in angels. Delicacy is an innate quality of the female heart, which, when once lost, can never be regained. No art can restore the grape its bloom or its sweetness to the taste, when the mildews of night have once settled down upon the vine. Familiarity without love, without confidence, without regard to the common rules of etiquette even, is destructive of all that makes woman exalting and ennobling.

"The world is wide, these things are small;
They may be nothing, but they're all."

Nothing! It is the first duty of woman to be a lady. Good breeding is good sense. Bad manners in women is immorality. Awkwardness in some may never be entirely overcome by graceful action. Bashfulness with some is constitutional, and cannot be eradicated. Ignorance of etiquette is the result of circumstances. All these can be condoned, and do not banish the true gentleman or the true lady from the social amenities belonging to their respective social positions in life. But an assumption of self-haughtiness, unshrinking and aggressive coarseness of deportment, may be reckoned as a semi-penal offence, and certainly merits and should receive the mild form of restraint called imprisonment from the coteries of social life. It is a shame for women to be twitted on their manners. It is a bitter shame that so many need it. Women are the umpires of all good and refined society. It is to them that all disputative questions in ethics, etiquette and fashion are referred. To be a lady is more than to be a princess. A lady is always in her right inalienably worthy of respect. To a lady, prince and peasant alike bow irresistibly.

A lady should not cultivate impulses that need restraint.

Young lady readers, do not presume nor desire to "dance with the prince unsought." Be such in society, and more especially at home, as will make you not only the dispenser of honor, but an altar where gifts of frankincense shall burn "both day and night" in honor of your own exalted personal worth. Carry yourself so womanly that men of high degree will look up to you for approval and reward, and not at you in rebuke.

The natural sentiment of man towards woman is respect and reverence—a large share of which he loses when he is obliged to account her a being to be trained or whipped into propriety. A man's ideal of respect is not wounded when a woman fails in worldly wisdom; but, if in grace, in sentiment, in delicacy, in tenderness, in modesty, she should be found wanting, then she from that moment becomes an object unworthy of the good man's respect and esteem.

Literature as a Profession.

Nothing is easier, in the estimation of some people, than to make a book or write successfully for the press. Impecunious people, and people who have failed at everything else, are especially convinced of their fitness for a "literary life." Men whose success in life has not met their anticipations, are prone to think that their failures are due to an access of the literary faculty, and they too fall back upon the pen.

If it were possible to see, in one comprehensive view, all the people who dabble in what, for the want of a better word, we must call literature, there would be brought into the prospect a very motley crowd. There would be persons of all kinds, representing in their original callings every possible occupation, and in their lives every degree of failure. There would be scholars of the highest order, and many more whose ignorance is only equalled by their pretensions. The number who have voluntarily made pen-work their profession would be found to be comparatively small, and it is only they who would rightly measure their prospects. All the rest would be found to be building castles in the air; looking to the fortune that they think is sure to be theirs whenever their transcendent ability shall have come to be acknowledged by the public. Such people are encouraged in their delusion by the statements that are published from time to time of the salaries of prominent journalists, and the profits of popular authors; but with these statements the other side of the picture is not given. The fate and sufferings of such men as Cervantes, Otway, Johnson, Goldsmith, Butler, Campbell, Dryden, and others, are readily forgotten. It may be answered that when these men lived, literature was less appreciated and the profit smaller. That is true; but the laborers were fewer too.

Mr. Carlyle has said that literature as a trade is neither safe nor advisable, and we do not think it often proves much better when taken as a last resource. Thackeray pronounced it one of the greatest evils to be born with a literary taste. Charles Lamb declared that anything is better than to become a slave to the booksellers and to the reading public; and even in the "Arabian Nights" literary labors are pronounced worthless if intended as a means to buy bread. Miss Mitford wrote for "hard money," but avowed she would rather scrub floors than suffer its penalties. Washington Irving, in a letter to a nephew, hoped that he was looking forward to something better than literature to found a reputation on. Southey said the greatest mistake in life a man could commit was to follow literature for a livelihood. Within a comparatively recent period, Douglas Jerrold, Shirley Brooks, Mark Lemon, and scores of others less generally known, have died almost in actual poverty. And yet they worked hard all their lives. The ranks of indifferent writers are full to repletion. If all such writers could be convinced that their efforts cannot lead to the goal their imaginations foreshadow, they might possibly be diverted into some more useful path. But this is almost hopeless while their persistence depends, as it generally does, upon a too exalted notion of their own powers.

It is elsewhere stated that "Planché, the great French critic, who died some years ago, between the contending forces of his life—celebrity and poverty—avowed that twenty-five years of literary labor had not produced for him more than ten thousand dollars—four hundred dollars a year!—and he was no corporal in the army of the pen, but a marshal, who received his baton at his first campaign."

The Value of Pluck.

It is this pluck, this bull-dog tenacity of purpose and stubbornness of perseverance, that wins the battles of life, whether fought in the field, in the mart, or in the forum. "It is the half-a-neck nearer that shows the blood and wins the race; the one march more that wins the campaign; five minutes more of unyielding courage that wins the fight. History abounds with instances of doubtful battles or unexpected reverses transformed by one man's stubbornness into eleventh-hour triumphs. It is opinion, as De Maistre truly says, that wins battles, and it is opinion that loses them. The battle of Marengo went against the French during the first half of the day, and they were expecting an order to retreat, when Desaix, consulted by Napoleon, looked at his watch, and said: "The battle is completely lost, but it is only two o'clock, and we shall have time to gain another." He then made his famous cavalry charge, and won the field. Blücher, the Ger-

nous Prussian general, was by no means a lucky leader. He was beaten in nine battles out of ten; but in a marvellously brief time he had rallied his routed army, and was as formidable as ever. He had his disappointments, but turned them, as the oyster does the sand which annoys it, into a pearl.

Washington lost more battles than he won, but he organized victory out of defeat, and triumphed in the end. It was because they appreciated this quality of pluck, that, when the battle of Cannæ was lost, and Hannibal was measuring by bushels the rings of Roman knights who had perished in the strife, the Senate of Rome voted thanks to the defeated general, Consul Terrentius Varro, for not having despaired of the republic. In the vocabulary of such men there is no such word as "fail." Impossibilities, so called, they laugh to scorn. "Impossible!" exclaims Mirabeau on a certain occasion, "talk not to me of that blockhead of a word!" "Impossible!" echoed the elder Pitt, afterwards Lord Chatham, in reply to a colleague in office who told him that a certain thing could not be done: "I trample upon impossibilities!" Before such men mountains dwindle into mole hills, and obstacles that seem unconquerable are not only triumphed over, but converted into helps and instruments of success, by their overwhelming weight.

Happiness at Home.

It has been said by a philosopher that every cross word uttered or angry feeling experienced, leaves its unerring mark on the face. This can be verified by a close observation of the countenances of those around us whose tempers and habits are familiar to us, and its truth thus established. And if the lineaments of the face show traces of such things, how much more must the general, moral and mental system be affected by them? Nothing is more susceptible of proof than the statement that one angry word brings on another, except the good old biblical saying, that "a soft word turneth away wrath." Many people, really possessed of a sincere desire to do right in all things, allow themselves to fall into the habit of using ungentle and even unkind words to those around them, when if their attention were called to the fact in the right way, they would be astonished at themselves. They mean no harm, but they do harm, both to themselves and to their associates. More especially is this harm perceptible in the family circle, where the developing child is the proud imitator of all the acts of its elders, and particularly those which are pronounced and noticeable. Here is where the carefully sown seeds of ungentleness are eventually ripened into a harvest of harshness and too often gathered in a crop of vice and crime. Too frequently are these sins of the parents visited upon the children, even of the third and fourth generation.

This all results from a lack of full appreciation of Happiness at Home. Happiness is made, not born. It may with reason be argued that it is an impossibility to be happy at home when one is crushed by the cares of life—by difficulties crowding on every side. But that brings us to the very point we are seeking and leads us to repeat, that happiness is made, not born. If a man firmly resolves to throw aside the vexing cares of business, or a woman the aggravations of domestic life, when the family is united, as most families are once in twenty-four hours, the thing is done. After the excitements of the day the nerves are naturally pretty "high strung," and an effort is required to prevent their disturbance upon the slightest provocation; but each effort renders its successor easier of accomplishment. Thus, a habit of gentleness, cheerfulness and kindness can be acquired, which nobody sees but to appreciate, admire and desire. The children acquire it in youth and save the subsequent efforts at self-control, while the neighbors are softened by contact with it, and the result is what we all should seek—Happiness at Home.

We may have but a few thousands of days to spend, perhaps hundreds only—perhaps tens, nay, the longest of our time and rest, looked back on, will be but as a moment, as the twinkling of an eye; but yet, we are men, not insects; we are living spirits, not passing clouds. He maketh the winds His angels; so flaming fire His ministers. And shall we do less than these? Let us do the work of men while we bear the form of them, as far as we snatch our narrow portion of time out of eternity, snatch also our narrow but glorious inheritance of mission out of immortality—even though our lives be as a vapor, that appeareth for a little time and then vanisheth away.



A MAY-DAY SCENE.

A bevy of children, a charming Spring day,
Met to choose among flowers a queen of sweet May.
They formed a bright circle of girls on the green,
To see who would make the most beautiful queen.
Each a bright blossom brought with its claims to the crown,
From the towering catalpa to feathery daisy.
First, the cowslip and daisy pretensions did bring,
Because it is they who bloom first in the Spring;
Then came the dahlia's proud boast of high birth,
Which caused 'mong the flowers an innocent mirth;
And the kind mignonette the bright jessamine brought—
'Twas not her own honor, but her friend's that she sought;
Then the sunflower, radiant with midsummer's glow,
Egotistical came, her high colors to show;
And the peaceful geranium, with virtuous pride,
Came crowned with the orange as if for a bride,
Then the rose in gentleness showed her fair face,
With the myrtle and ivy her presence to grace;
But the rose and the lily in peaceful array,
Lingered still in the wildwood, nor sought to display
Their own radiant colors to vie with the rest.
Until sought in a chorus; the flowers request
Them to come in their beauty so pure and serene,
As they could not make choice; they crowned for a queen
First the Rose for her beauty, her silence and grace,
Then next the Archbishop in triumph did place
A crown on the Lily, which, with modesty's dread,
Hung aloof from all honors, till smiling he said,
"Sweet emblem of purity, chosen to-day
To reign with the Rose, as the monarch of May;
Accept of this crown, it will rapture impart
To thy beautiful face, and thy innocent heart!"
Then the dance 'round the May-pole began in high glee,
And the children were happy, as happy could be.

Snail Eating.

Snail eating has been in vogue in Italy for many centuries. In Pliny's time Barbary snails stood first in repute, those of Sicily ranking next; and it was the custom to fatten the creatures for the table by dieting them upon meal and new wine. In modern Rome, fresh-gathered snails are hawked by women from door to door, for the benefit of good housewives, who boil them in their shells, stew them, or fry them in oil. An Englishman strolling about Palermo came upon some people gathered round a number of baskets filled with what, at first sight, he took to be white pebbles. Upon nearer acquaintance the pebbles proved to be snails, waiting to be thrown into a large iron pot standing over a fire made between four stones, and boiled with herbs and tomatoes, for retailing to the expectant crowd. Dining afterwards with a Sicilian gentleman, he was invited to partake of some snails treated in this way, and, for politeness sake, forced himself to swallow a couple of them, although he found it impossible to feign the delight with which his host and his daughter sucked the molluscs out of their shells.

Nitrogen.

BY JAS. P. DUFFY.

The properties of nitrogen are almost entirely of a negative character. It does not support combustion, has no smell or taste, and is scarcely absorbable by water. It derives its name from nitre, of which it is a constituent; it is occasionally called *azote*, from the fact that animals cannot breathe it in a pure state. It has, however, no direct poisonous qualities; and fatal effects, resulting from inspiring it, arise from the absence of life-sustaining powers. It, however, exerts great influence in animal life, as it forms a constituent of flesh, and various compounds produced or consumed by animals. It is also a constituent of ammonia and nitric acid. For general purposes, nitrogen can be procured in the following manner: Place a small piece of phosphorus on a piece of cork floating in a basin of water, and having ignited the phosphorus, invert over it a tall glass jar full of air, pressing the mouth of the vessel beneath the surface of the liquid. A few bubbles of air will at first escape, owing to the expansion of the air by heat. Eventually, however, the water will rise inside the glass jar to the extent of about one-fifth of its capacity, leaving the jar four-fifths filled with oxygen, which can then be removed to another jar for convenience of use.

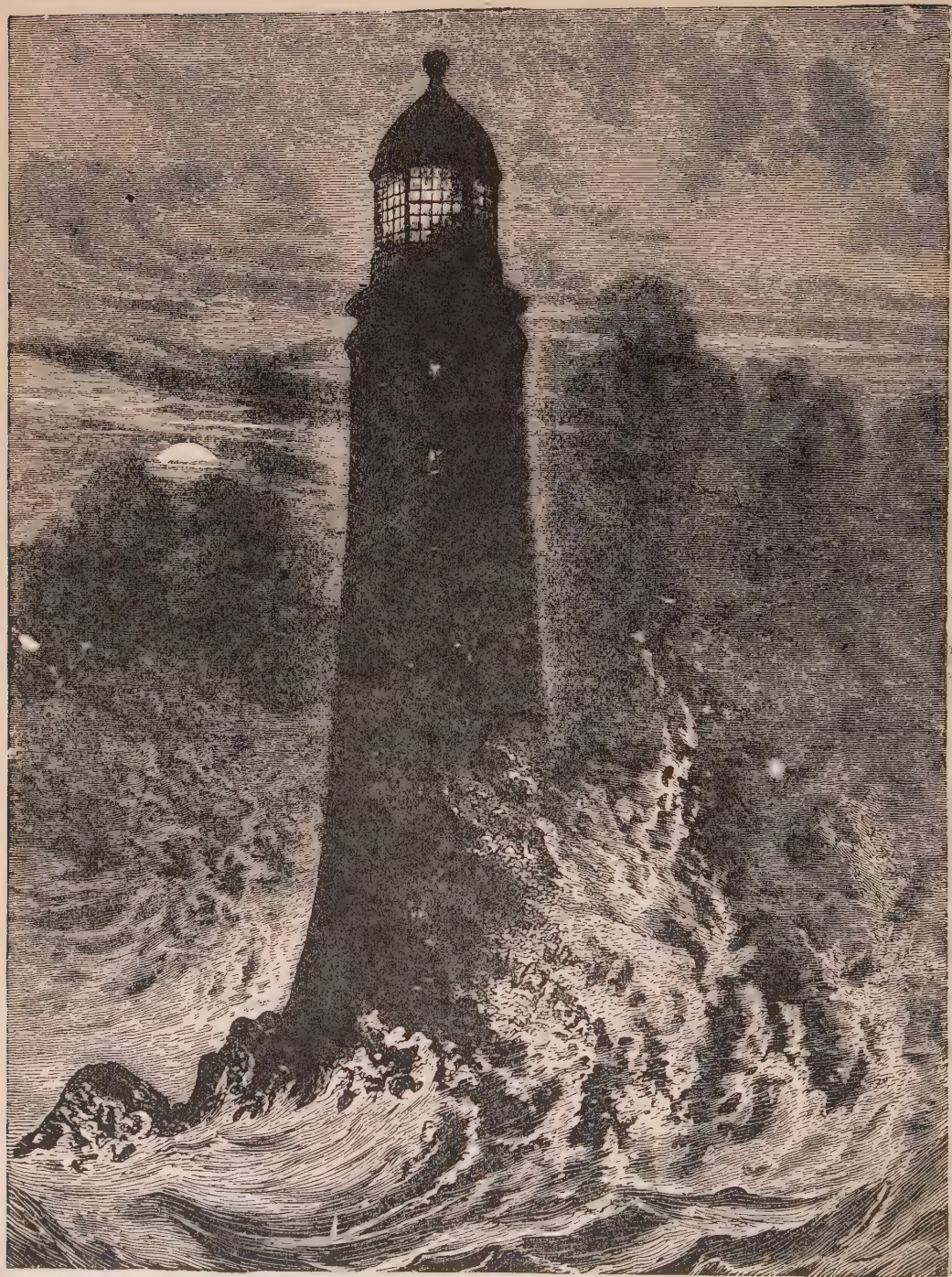
The most important use of nitrogen is that found in the air we breathe, which is composed of seventy-nine parts, by measure, of nitrogen, to twenty-one parts of oxygen. Were it composed entirely of pure oxygen, it would be impossible to extinguish a fire which had once been kindled. All animal and vegetable life would be too highly stimulated, and our present state of existence rendered impossible.

The most important combination of nitrogen with oxygen is nitric acid. It contains five equivalents of the latter element to one of the former. In its ordinary condition it is united with water, and forms the ordinary *aqua-fortis* when in a comparatively diluted condition. When quite pure, it has but a very faint yellow color. The light of day or the solar rays, speedily decompose it, and deepen its color. It is obtained by distilling a mixture of nitre, sulphuric acid and a little water, in a retort, receiving the vapor which passes over in a receiver, which should be kept cool so as to condense the acid. It has an intensely sour taste; turns the human skin to a deep yellow color; and with bases, forms the salts called nitrates. Nitric acid is largely used in commerce for a variety of purposes. With hydro-chloric acid it forms *aqua-regia*, which is used to dissolve gold and platina. Nitric acid is occasionally present in the atmosphere after a thunder-storm, and is often found in water, etc., through which animal matter has passed in a state of decomposition. With potash it forms the ordinary saltpetre of commerce, which is largely employed for the manufacture of gun-powder. When cotton-wool is digested in strong nitric acid or a mixture of nitric and sulphuric acid, (which must be cooled before being used) the character of the cotton is completely changed; for after having been well washed with water and dried, it becomes highly explosive, and by these means *gun-cotton* is produced.

Nitrogen forms also an explosive compound with iodine, which is analogous to the last. This iodide of nitrogen is prepared by adding liquid ammonia to iodine, great care being observed in the process to prevent any accident from a premature explosion.

Buffaloes Guarding a Boy.

There was a Malay boy near Singapore, who was employed by his parents in herding some water-buffaloes. He was driving his charge home by the borders of a jungle, when a tiger made a sudden spring, and, seizing the lad by the thigh, was dragging him off, when two old bull buffaloes, hearing the shriek of distress from the well-known voice of their little attendant, turned round and charged with their usual rapidity. The tiger thus closely pressed, was obliged to drop his prey to defend himself. While one buffalo fought and successfully drove the tiger away, the other kept guard over the wounded boy. Later in the evening, when the anxious father, alarmed, came out with attendants to seek his child, he found that, although the herd had dispersed themselves to feed, two of them were still there, one standing over the bleeding body of their little friend, while the other kept watch on the edge of the jungle for the return of the tiger.



THE EDDYSTONE LIGHT-HOUSE.

CONCERNING LIGHT-HOUSES

The force of the waves, and the height to which they dash against light-house towers, in the most exposed situations, are astonishing; and we cannot contemplate them without reflecting how great a triumph of art these buildings are, and how strange life in them must be.

They are necessarily situated on headlands, isolated rocks, or sands and pierheads; and from the benevolence of their design, and in many instances from the boldness of their construction, they have always been objects of interest independently of their use to mariners. The materials used in the construction of light-houses are wood, stone, brick, cast-iron and wrought-iron. Stone, brick and iron are the most important, and are used exclusively in all large light-houses. Cast-iron light-houses were first erected by Mr. Alexander Gordon, an English civil engineer. Two were constructed for England on the islands of Bermuda and Jamaica. From the fact that every part of the structure can be completed at the workshop, cast-iron light-houses answer admirably for positions at points remote from large centres or manufactures, and are gradually coming into use. Several light-houses of this kind have been erected at various places on the coast of the United States. They require a lining of brick, the weight of which prevents oscillation or swaying, while its low conducting power of heat hinders the deposition of moisture on the well room of the stairs, which would otherwise be occasioned by the difference of temperature between the inside and outside of the tower. To further this latter object space is also left for a current of air to flow between the iron and brick.

Another kind of iron light-house is the wrought-iron pile light-house. The lower ends of the iron piles are fitted with large cast iron screws where the foundation is sand, and the piles are screwed to a firm bearing, or these ends are sharpened, and the piles are driven into the rock or hard ground by an ordinary pile-driver, until they come to a firm bearing upon cast-iron disks, which bear upon shoulders forged on the piles. This kind of light-house was first built in England; the screw pile was patented about 1836 by Mitchell, and is called Mitchell's Screw Pile. It was introduced into the United States in 1845, and has since been used in the construction of many important light-houses on the coast, but experience has shown them unsuitable for foundations in water where ice is formed—the ice moving in large fields bends, and sometimes breaks the piles. They have been found particularly adapted to Southern coasts, and about thirty now exist in the States. Their annual cost for repairs is very small, a yearly coat of paint being all that is needed to keep the exterior in order.

Light-house towers are generally surmounted by parapet walls, which vary in height from three to seven feet, according to the order of the light. Upon the parapet wall is placed the lantern in which the illuminating apparatus is contained. The lantern is glazed frame-work, made of brass or iron, and varies in dimensions from six feet in diameter and four feet in height, to twelve feet in diameter and nine feet in height. It is a regular polygon and can be made of any number of sides. It is surrounded by a dome constructed of copper or iron, which is generally lined with some other metal to prevent condensation of moisture. Heated air escapes from a ventilator in the top, and the supply of fresh air is regulated by registers at the bottom. The first light-houses in America were lighted with tallow candles, and solid wick lamps, suspended by iron chains. In 1812 the

Argand burners and reflectors were adopted, and were used until 1852, when the general introduction of the lens system commenced. In only one case in the United States is a light-house lighted with natural gas. There is little doubt that oil will be eventually superseded by gas or the electric light, but in the present state of the gas manufacture it seems impossible to make a burner that will give the proper size and shape of flame for the large order of lights.

Little is known of the early history of light-houses, but sea lights are mentioned by Homer in the *Odyssey*, and they are also referred to in the Greek poem of Nero and Leander. These must have been merely fires kindled upon headlands.

The most noted light-house in the world for size and antiquity was the Pharos of Alexandria. This building was the frustum of a square pyramid surrounded by a large base, the precise dimensions of which are not known. It was commenced by the first Ptolemy, and was finished 300 B. C. The style and workmanship are represented to have been superb, and the material was a white stone. The height was about 550 feet, and it is stated by Josephus that the light was visible about 41 miles. It was probably destroyed by an earthquake, but the date of its destruction is not known. Enough is known, however, to make it certain, that this tower existed for 1,600 years. The island upon which it was situated was named Pharos, and the structure took its name from its site.

One of the most remarkable modern light-houses is the tower of Cordouan, the construction of which occupied 26 years. It was completed by Louis de Foix, a French architect and engineer. It is situated on a ledge of rocks in the mouth of the Garonne, in the Bay of Biscay. The ledge is 3,000 feet long and 1,500 feet broad, and is bare at low water. It is surrounded by detached rocks, upon which the sea breaks with terrific violence.

The Eddystone Light-house, of which we give an illustration, is the most distinguished in the world, both on account of the difficulties attending its construction, and the fact that it is the type of all structures of the kind that have since been erected. The dangerous reef of Eddystone rocks are in the English Channel, six or seven hundred feet in length, and about nine miles south-west from the Ramhead. They consist of three principal ridges, which are entirely covered at high water. The highest part of the rock upon which the light-house is placed is about sixteen feet out of water at low water of spring tides. The first here built was commenced in 1696, and finished in 1699. This building stood until November, 1703, when Mr. Winstanley, the builder, went to the light-house with a party of workmen to make some repairs. On the 26th of the month a terrible storm arose, and not a remnant of the light-house, nor a trace of its inmates were ever seen afterwards.

The fact that a light-house could be made to stand on the Eddystone having been demonstrated, another was built by a person named Rudyerd. It was an exceedingly ingenious combination of oak and iron. The outside casing was composed of seventy-two oak posts or uprights, the lower ends of which were fastened to the rock by heavy irons which were let into lewis holes. This building was completed in 1709, and stood well with some repairs of the wood-work until 1755, when it was destroyed by fire. The fire commenced in the lantern in the early part of the night, and the keepers retreated from room to room, until they reached the rock. Early in the morning they were brought to the shore, as the weather was good enough to permit a boat to land at the rock, although the violence of the swell at the light-house renders communication with the shore extremely difficult, even in serene weather.

In 1756 the present edifice was commenced by the celebrated engineer, John Smeaton. The material employed was Portland stone, encased in granite, partly quarried from the rock itself, into which the foundations were dovetailed. The experiments made by Smeaton on hydraulic cements, in connection with the construction of this work, were particularly valuable, and are quoted to this day. The erection of this light-house was, on account of its position, the difficulty of access to its site, and the fact that Smeaton had determined to build it of stone, attended with the greatest difficulties. The genius and energy of the engineer triumphed over all obstacles, and the work was finished in 1759. It is between eighty and ninety feet high, and furnished with sixteen pow-

erful Argand burners, giving a light of the first magnitude, visible in clear weather for thirteen miles. It has stood 100 years, a monument of the skill of its designer, and an example to all engineers. The sea rises frequently above the light, the strong plate glass of the lantern having been more than once broken by the waves. Three light-keepers are employed here, and the house is always supplied with provisions for three months, and a stock of 500 gallons of oil.

The North Unst Light-house is one of the most recently erected on the coast of Great Britain, and is of special interest as being situated at the most northern point of land in the British Islands. It is built on *stack* or outlying rock of conical form, of nearly two hundred feet in height, at the north end of Unst, the northernmost of the Shetland Isles. The rock, as seen from the south, very much resembles a sugar-loaf in form, and its steep slope could only be scaled with difficulty previous to the cutting of steps in it. On the north it is nearly perpendicular, and exposed to the full "fetch" of the ocean. The top of the rock affords little more space than is sufficient for the site of the light-house. There is only one part of the rock where a landing can be effected, and that, of course, only in favorable weather, so that the light-keepers are as completely cut off from communication with the rest of the world, as if their islet abode were many miles from land. The dwelling-houses of their families are on the island of Unst. The first light shown here was from a temporary tower erected in 1854, at the suggestion of the Admiralty, for the benefit of the North Sea squadron in the Russian war. A temporary iron light-house and dwellings were constructed at Glasgow, and carried to the spot, with all materials and stores, by a steamer; and light was shown after little more than two months, although landings were accomplished with difficulty, and everything had to be carried to the top of the rock on the backs of laborers. The temporary buildings being nearly two hundred feet above the level of the sea, it was supposed that they would have nothing but wind and rain to withstand. But in December, during a severe gale from the north-west, the sea broke heavily on the tower, and broke open the dwelling-house and deluged it with water. Similar storms occurred during the winter; seas fell with violence on the iron roof of the dwelling-house, so that the light-keepers began to entertain serious doubts of their own safety. It was resolved, therefore, to raise the permanent structure fifty feet above the rock. This light-house was completed in 1858.

Most lonely and remote from all the ordinary scenes of busy human life are the light-houses of Skerryvore and Dubh-artaig; towers of one hundred and forty feet high, on the rocks in the Atlantic. Dubh-artaig is a rock of considerable size, rising above the level of high water, but over which the waves break in a moderate gale. It lies in the open ocean, twenty miles from the island of Mull, and a like distance from that of Colonsay. Skerryvore is a reef of low rocks, equally in the open ocean, about twelve miles from the island of Tyree, where the families of the light-keepers live, and about twenty miles west from Iona. At the Longships Light-house, on the top of a conical rock opposite Land's End, in heavy weather, waves break about the lantern seventy-nine feet above high water mark; and on one occasion the sea lifted the cowl of the top so as to admit a great deal of water, by which several of the lamps were extinguished, and all the men were employed in bailing till the tide fell. There is a cavern under the light-house at the end of a long split in the rock, and when there is a heavy sea, the noise produced by the escape of pent-up air from the cavern is deafening. Concerning the Scilly Bishops' Light-house, on a rock in the south-west of the Scilly Isles, of which the building is perhaps the most exposed in the world, the spray goes over the top of the light-house, the height of which is one hundred and ten feet. At the South Bishop Rock Light-house spray occasionally strikes the lantern, and it has broken the lower windows of the dwelling-house—that is, of the part of the tower so called. Yet the South Bishop Rock Light-house is on a rock—off the coast of South Wales—of such size that there is a patch of grass before the door, and the tower rises to a height of one hundred and forty-four feet above the sea. The Smalls Light-house, also off the coast of South Wales, is on a low rock about twenty miles from land, but so large that there is room to walk about. It is above high-water mark; but we are told the sea breaks all about the lantern of the old light-house when there is heavy weather.

Many of the light-houses in the United States are unsurpassed by any in the world, and are of exceedingly difficult construction. The most noted is that of Minot's Ledge, off the coast of Massachusetts. It is situated about eight miles E. S. E. of Boston light, and is a projecting point very dangerous to vessels coming into Boston from seaward. It is about one and a half miles from the nearest land, and at low water the highest part of the rock (a circle about twenty-five in diameter) is bare. The rise of spring tides is about twelve feet, so that no part of the rock is ever uncovered more than a few minutes. The difficulties of erecting a light-house on this rock cannot be exaggerated. The attention of commercial men and mariners was drawn to the dangers of this point, and in 1847 an appropriation was made by Congress for the construction of a light house on the rock.

It was determined to erect an iron pile structure. The plan of the work was an octagon, the side of which, at the base, was nine and a half feet, the diameter of the circumscribing circle

being twenty-five feet. Iron piles ten inches in diameter, where they leave the rock, were inserted five feet into it, at each angle of the octagon, and at its center. These were firmly braced and tied together by wrought iron braces. At a height of fifty-five feet above the highest point of the rock, the heads of the piles were secured to a heavy casting.

The structure was finished in the Autumn of 1849, and stood until April, 1851, when it was carried away by one of the most terrific storms that has ever occurred on the Atlantic coast. All the iron piles were twisted off at short distances above their feet.

In 1852, Congress appropriated money for rebuilding the light-house, and a design was originated by the light-house board, and approved by the Secretary of the Treasury in 1855. The design is a granite tower in the shape of a cone. The base is thirty feet in diameter, and the whole height of the stone-work is eighty-eight feet. The lower forty feet are solid. The stones of the courses are dovetailed in the securest manner, and the courses are fastened to each other by wrought galvanized iron dowels three inches in diameter.

The work was commenced in 1855, and an idea of the difficulties to be overcome may be formed from the fact, that although every moment in which it was possible to work upon the rock was taken advantage of, it was not until the last part of the season of 1857 that any stones were laid, the whole of the intervening time having been taken up in leveling the foundation bed. It was ready for illumination about the last of 1860.

The early history of light-houses in the United States is involved in obscurity. All built prior to 1789 were ceded to the Federal government by the respective States, near the time of the adoption of the Federal Constitution, and the records of the erection and maintenance of the light-houses before that date are buried among the archives of the several States. It is known, however, that the principal ports were lighted before 1779. The buildings were generally rough stone or wood towers surmounted by large iron lanterns. With one or two exceptions they have all been rebuilt.

A new impulse was given to light-houses in this country about the year 1845, when a commission consisting of two officers of the navy were sent abroad to examine the light-house establishments of European governments. About the same time as before stated, Mitchell's screw pile was introduced, and the style of reflectors and lamps was much improved.

On June 30, 1859, there were 491 light stations on the coast of the United States, including the Atlantic, Pacific, Gulf and Lake coasts, and the shores of the various bays, sounds and rivers.

There were 576 lights shown at these stations. Of the 491 light stations, 48 are light vessels, which show 64 lights; the remainder, 443, are light-houses which show 512 lights.

The expenditures on account of the maintenance of the light-house establishment for the fiscal year ending June 30, 1859, were nearly as follows:

Light-houses.....	\$594 033 99
Light Vessels.....	211 910 14
Buoys and Beacons, &c.....	126 988 77

Total, \$932 932 90

The number of buoys and beacons in the waters of the United States is between five and six thousand. The buoys must be shifted, cleaned, and painted every season, and those which are in exposed positions are frequently carried away by heavy seas or ice. The cost of keeping these aids to navigation in an efficient state, is no small item in the annual expense of the establishment.

The coasts of the United States are divided into twelve light-house districts. To each of these districts is assigned an inspector, who is detailed from the officers of army engineers and the navy. They are furnished with schooners in which they make quarterly inspections of the light stations in their districts, and which are also used for taking care of the buoys. They are required to make annual reports of the condition of their districts, in which are embodied their recommendations of new lights.

The Secretary of the Treasury is *ex officio* President of the Light-house Board, and its decisions are in all cases subject to his control. The light-house establishment, therefore, is a branch of the Treasury Department, and its annual expenses are estimated for by that department. Meetings are held quarterly at Washington, where the office of the Board is situated. In all governments except that of the United States, commerce is directly or indirectly made to pay for the expense of the light-house establishments. In Great Britain, a tax is laid upon every vessel, domestic or foreign, that uses the particular light which is to be supported. In some countries a light due is levied, which is constant, whether one or more lights have been used by the vessel. In others, as France for instance, a harbor due or tax is levied, with the proceeds of which the lights are kept up, but the necessary amount is appropriated from the public treasury. The tax is always a severe exaction and restriction upon commerce, and it is to be regretted that foreign governments do not in this instance follow the example of the United States, which supports its light-house establishment without any tax upon vessels, domestic or foreign. The foreign vessels reap the benefit of our policy, but do not return the favor to United States vessels.

The Last Walk to Bethany.

So ended that great discourse upon the Mount of Olives, and the sun set, and He arose and walked with His apostles the short remaining road to Bethany. It was the last time that he would ever walk it upon earth; and after the trials, the weariness, the awful teachings, the terrible agitations of that eventful day, how delicious to him must have been that hour of twilight loveliness and evening calm; how refreshing the peace and affection which surrounded Him in that quiet village and the holy home! Jesus did not like cities, and scarcely ever slept within their precincts. He shrank from their congregated wickedness, from their glaring publicity, from their feverish excitement, from their featureless monotony, with all the natural and instinctive dislike of delicate minds. An Oriental city is always dirty; the refuse is flung into the streets, there is no pavement, the parish dog is the sole scavenger; beast and man jostle each other promiscuously in the crowded thoroughfares. And though the necessities of His work compelled him to visit Jerusalem, and to preach to the vast throngs from every clime and country, who congregated at its yearly festivals, yet He seems to have retired on every public occasion beyond the gates, partly it may be for safety—partly for poverty—partly because He loved the sweet home at Bethany—partly too, perhaps, because He felt the peaceful joy of treading the grass that groweth on the mountains, rather than the city stones, and could hold gladder communion with His Father in Heaven under the shadow of the olive trees, where, far from all disturbing sights and sounds, He could watch the splendor of the sunset and the falling of the dew.

The exquisite beauty of the Syrian evening, the tender colors of the spring grass and flowers, the wadys around Him paling into solemn gray, the distant hills bathed in the primrose light of sunset, the coolness and balm of the evening breeze after the burning glare—what must these have been to Him to whose eye the world of nature was an open book, on every page of which he read His Father's name! And this was His native land. Bethany was almost to Him a second Nazareth; those whom He loved were around Him, and He was going to those whom He loved. Can we not imagine Him walking on in silence too deep for words, His disciples around Him or following Him, the gibbous moon beginning to rise and gild the twinkling foliage of the olive trees with rich silver, and moonlight and twilight blending at each step insensibly with the garnish hues of day, like that solemn twilight-purple of coming agony into which the noon-day of His happier ministry had long since begun to fade.—*Farrar's Life of Christ.*

The Toilet of Sweden.

The inhabitants of this northern clime are distinguished from those that dwell in southern lands, by having a national dress which was established in 1777, doubtless with the wise intention of repressing or totally preventing those extravagances and luxuries of clothing so prevalent among other nations. "The monster fashion," says Swinton, in his *Travels*, "created for a scourge for mankind, has occasioned every evil that infests the age."

Gustavus III. of Sweden has shown that he participated in this opinion, for his sumptuary laws regarding dress are very determined and exact.

By the edict on this subject, settled in 1777, the men are ordered to wear a close coat, very wide breeches, strings in their shoes, a girdle, a round hat, and a cloak. The usual color for all these articles of dress is black on ordinary days; but on court days they must assume a singular appearance, for they are enjoined to wear the cloak, buttons, girdle, and shoe-strings of *flame color*. The women are obliged to wear a black gown, with puffed gauze sleeves and a colored sash and ribbons; those however who go to court are allowed to wear white gauze sleeves.

Coxe, in his *Travels*, gives a more detailed account of this costume. The dress of the men, he says, resembles the old Spanish, and consists of a short coat, or rather jacket, a waistcoat, a cloak, a hat with feather *a la Henri IV.*; a sash round the waist, a sword, large and full breeches, and roses in the shoes. The cloak is of black cloth, edged with red satin! the coat or jacket and breeches are also ornamented with red stripes and buttons; the waistcoat, sash, pinks at the knees, and roses for the shoes are of red satin.

The Rich-Poor of Paris.

There is no such thing as measuring the dimensions of a Frenchman's house. He may live at the top of a magnificent white marble palace, in six rooms, at a rent of one hundred or two hundred dollars. And yet when you have climbed up there, have sounded the bell and have been admitted into the hall, which, with its highly polished mirror, will deceive you at once in regard to the size of the little box, you are convinced that he revels in luxury. Opposite the hall glass opens the folding doors into the parlor, which is a long room with still more mirrors to aid in increasing the perspective. Off of this room are yet other folding doors, two of them leading into the dining-room, which is always fitted up in exquisite taste, and, with studied carelessness, left visible to the caller. Try the doors at the other side of the room; it is hard to open them. Probably locked? Most effectually locked! They never move upon their hinges. Still they are not quite as useless as "a painted ship upon a painted ocean," for they serve a double purpose: they dispense with the necessity of pictures to fill up the bare walls—for who would hang pictures on the doors?—and they give one the impression that vast apartments stretch beyond.

Madame will receive you in the most charmingly languid manner if your call chance to occur in the day time. She has just arisen, won't you have coffee with her? This, if she means by generous courtesy to make a useful friend of you. Now you find your way into what she calls her private apartment, which, like the other rooms, opens into the parlor. It is really quite a gem in its way. You wish you were French, or, at least, that you might understand the art of living as the French people do. But a little closer acquaintance and a moderate increase in your experience will teach you that these people work and strive only for the sake of the appearance they make. They comprehend what the elegances of life consist of, and they will live without the commonest necessities in order to deceive you as to their real condition. A family of seven persons will actually live in two small rooms, and make their beds up late at night on the floor of the apartments in which, but a few moments before, they were chatting with you upon the impossibility of economizing in Paris since the war. Even they, in their modest style of living, find that it takes a fortune to spend a year in Paris. You are shocked to hear them suggest that theirs is a simple mode of life—you never thought of being so fine at home. In reality, these people I speak of live like paupers. They sleep on the floor the year round, and often on the kitchen floor at that. The last is convenient, as they can get up and put the coffee over the spirit lamp and retire again until it is prepared. Coffee is taken in bed, of course.

For the benefit of the girls at home who may admire and envy this lady of luxury that graciously asks you into her *boudoir* at eleven o'clock, declaring she has just arisen, and invites you to take coffee with her, I will tell them something of her toilets and the singular way in which they change with the hours of the day. Nobody is out early in the morning—that is to say, nobody before whom she cares to keep up an appearance—and, as the market people always measure a customer before setting a price, it is wise to go to market shabbily dressed, not only because no one sees her, but as a matter of economy. So the toilet of the day is not made until this duty has been performed. In exchange for the great, airy bathroom, with its abundance of hot and cold water, and its fresh, clean towels, which Americans cannot live without, Madame has, in a little dark hole between the kitchen and her bed-room, a pint of water in a basin the size of a finger bowl. For water is to precious a commodity to be used unless sparingly. It has to be carried from the street up five flights of stairs, and a servant must be paid five cents an hour to do it. No further arguments than these are necessary with Madame. With the aid of a dirty little towel, for clothes must be washed away from home—there is neither room nor water to do it in these papier mache boxes—our lady will succeed in making herself very tidy. I have really begun to wonder if there is such a thing as dry wash. At ten o'clock the *coiffeur* comes and Madame's hair is dressed as, my dear, you never think of having yours dressed except it be for a ball. If she chances to be a little gray the hair is powdered after it has been arranged in its intricate puffs, braids and frizzles.



MY BIRD.

BY G. WEATHERLY.

One morn, when wintry winds blew chill,
A bird hopped on my window-sill—
A little bird with soft brown eyes
That looked at me with mute surprise,
As wondering why I did not rise
And haste to ope the window wide,
And welcome him with loving word—
It was so very cold outside—
Poor hapless bird!

And so I welcomed him; and he
Hopped gladly in, and stayed with me
All through the winter dark and drear,
And every day he grew more dear,
Until at length, for very fear
Lest he perchance might stray away,
And all his love be lost to me,
I made a cage for him one day,
Ah, miserie!

For day by day his love grew less—
His freedom was his happiness—
And soon he seemed to pine away;
Until at last, one summer day,
The cage was open, and away
He flew upon the summer wind,
And soared the waving trees above,
Forgetting all he left behind—
My care and love.

And now I often sit at eve,
And wandering threads of fancy weave
Into one rhyme that lingers long,
And speaks to me like some old song,
Saying, "True love is trusting, strong,
Having no fears of what may be;
But weaker love brooks no restraints,
And when it seems no longer free
It tires and faints."

And so, perchance, but for my fear,
My bird might still be ling'ring here;
And oft I think, when summer's o'er,
And winter comes all chill and hoar,
Upon the sill he'll perch once more;
And I, since he'll have need of me,
And strong pure love can never dim—
Will ope my window willingly,
And welcome him.

Fishing Through the Ice.

I visited Bay City a few days ago, and learned that the fishing season had fairly commenced, and that fishing parties were daily going out to the bay with their shanties and fishing apparatus to commence their winter's work. I

at once applied to a livery stable for conveyance to the curious city. I was informed that it was some six or seven miles to the fishing grounds, and that the only road by which I could reach them was on the ice on the river. I was assured that the river road was perfectly safe, and that the ice was at least eighteen inches in thickness.

The first fishing shanty I found about a mile above the mouth of the river, and in this neighborhood were perhaps a dozen, being all of about the same make and size, about six feet square, high enough for a man to stand up in, covered with a roof, and built on runners, so as to be easily moved from place to place, as the owner might desire. A small stove, and blankets for sleeping, forms also an important part of the outfit. The material mostly used in the construction of the shanties is thin strips of timber lined with thick building paper. Near the first group of shanties, and on the high road to the bay, stands a new, rough board building, about 12 by 16 feet, built also on runners, and labelled over the door, "saloon." Immediately after passing this group and the saloon, the road leaves the river channel and passes for some distance over an overflowed marsh to the shore of Saginaw bay. Here could be seen, as far as the eye could reach outward toward the lake, these small abodes of the fishermen. I could see from this point what appeared to be quite a large building, about a mile distant from the shore, and started at a brisk pace to reach it. I found the distance to be much greater than it appeared. When once there I discovered it to be a hotel, which affords entertainment for man, and stabling and hay for horses.

The sight from this point is astonishing, the shanties dotting the surface of the bay in all directions as far as I could see. I learned that the number of these shanties on the bay was about 300, that about thirty were arriving and being put up daily, and that the average number of occupants in each shanty was three men or boys, thus making, including the larger buildings and their occupants, not less than 1,000 persons already living on the ice. Mr. Fuller thinks there will be thrice the number on the ice by the middle of February, and that they can remain there in safety until the middle of March. Mr. Fuller could not give any satisfactory estimate of the fish caught, but the facts that teams are constantly engaged in gathering together and hauling the fish to Bay City, whence they are shipped to all parts of the State, and that all these people find it sufficiently profitable to induce them to brave the perils and hardships attending this adventurous life, is proof that the aggregate revenue of the business must be quite large.

This mode of fishing seems to be peculiar to Saginaw bay, and was practiced by the Indians many years ago, but it has been but a few years since it has grown into such enormous dimensions.

English and German Canaries.

The great breeding places for canaries are Norwich, Yarmouth, Yorkshire, Lancaster, and Manchester. These places supply the London market with canaries. Canaries are mostly bred by shoe-makers during the Summer, and sold to the London trade from October till March. They are sent up in "scores," one score being twenty pairs. If you were to send for a "score" of canaries, they would send you forty birds. The breeders prefer sending them in pairs. Three hens are charged as a "pair." The wholesale price in the Autumn is £4 per score. The price rises in the Spring and advances to as much as £7 per score. The most valuable and delicate canaries are the Belgians. When undisturbed they sit "all of a lump," but when the cage is taken down they show their beauty by lengthening themselves out like a telescope, and bringing themselves into form. Some will nearly pass through a large wedding ring, and birds of first-class will fetch as much as £10 per pair. The next kind of canary most resembling the Belgians are the Yorkshire birds. These are also very long and graceful. They vary from seven shillings and sixpence to thirty shillings per pair. Norwich, as a rule, produces the richest-color birds. The motto is:

Norwich for color
Belgian for shape
And German for song.

The best come from the Hartz Mountains. German birds are not much to look at, but command high price on account of their beautiful song.

Newspapers and Periodicals.

An American might be defined by naturalists as an animal who lives upon vegetable, farinaceous and animal food—and newspapers and periodicals. His daily and weekly journals are as indispensable to him as his daily bread and his Sunday dinner. If he misses his paper, he is a lost man. Deprive him of his natural pabulum for a few days and he becomes lank and melancholy, like that lion the old settlers of Plymouth saw, which, having lost his jackal, "had become so poore" as to excite their pity. When he is restored to his paper, he fastens on it with the voracity of a famished wolf. The church, school and printing office springs up simultaneously in every new settlement—the Holy Alliance of clergyman, schoolmaster and editor being everywhere recognized as essential to the onward march of civilization. We never take up one of the little frontier papers, printed only on wrapping paper, with worn out type, without a feeling of kindly respect. Such papers increase in size and style with the enlargement of the settlements they illuminate, and the newspaper of any locality is a sure measure of its prosperity. How many thousand of ardent minds are engaged in this labor of enlightenment—not thankless, though often ill-paid. These *Bugles of Liberty*, and *Pine Knobs of Freedom*, and *Clarions*, and *Heralds*, and *Beacons*, on the verge of civilization, if they bring not wealth to their projectors and conductors, they yet yield a return of fair fame and honor.

If a man who makes two blades of grass to spring up where only one grew before, deserves well of his country, what reward would and should be his, who starts a newspaper for the first time in a howling wilderness? A free press in the van of civilization is of more account than an "army with banners." A family group gathered round a blazing fire of wood or coal, upon a rainy evening, is a pleasing picture. But with all the appliances of comfort, what is this fireside without a paper, not only to while away the tedium of a long winter evening, but to aid in the great business of family instruction and mental improvements? Books are good, and books do much, but they cannot accomplish everything. They deal more with the past than with the present, and that training is of little value which does not embrace the everyday affairs of the world going on around us. A newspaper is the contemporary history of the world we live in. Its greatness and its littleness, its gaiety and its gravities, its sins and sorrows, its occupations and amusements, its warnings and its hopes are there spread out before us. Gathering within its ample pages the treasures of the east and west, the north and south, as fast as the united agencies of wind, steam and electricity can bring them to a focus, it affords the very material wherewith to form practical men and women of this growing generation.

No man can be uninformed who takes and reads a well conducted weekly paper. The children of such a man will not be found hankering after frivolous and vicious amusement. The domestic cat in such a family will never be found abbeveriated of her caudal appendage, or scouring wildly through the kitchen with a pyrotechnic apparatus affixed to that useful member. Peace takes up her abode on the hearth-stone of the man who takes a paper—not from a neighbor's doorstep—but one who fairly "faces the music," pays his subscription like a man, and enjoys the advantages of his weekly sheet, because he is fairly entitled to them. Therefore, step up, subscribe, and be happy.

Failure or Success in Life.

Take two men, if they could be found, exactly alike in mental and bodily aptitudes, and let one go on carelessly and idly, indulging his appetites, and generally leading a life of pleasure, and let the other train himself by early hours, by temperate habits, and by giving to muscle and brain each their fair share of employment, and at the end of two or three years they will be as wide apart in their capacity for exertion as if they had been born with wholly different constitutions.

Without a normal healthy condition there can, as a rule, be no good work; and though that qualification cannot absolutely be secured or preserved by any rules, a little common sense and care will go a long way both in securing and preserving it. On that point I would give you these hints: First, that it is not mental labor which hurts anybody, unless the excess be very great, but rather fretting and fidgeting over the prospect

of labor to be gone through; so that the man who can accustom himself to take things coolly, which is quite as much a matter of discipline as of nature, and who, by keeping well beforehand with what he has to do, avoids undue hurry and nervous excitement, has a great advantage over one who follows a different practice.

Next, I would warn you that those students who think they have no time for bodily exercise, will, sooner or later, have to find time for illness. Third, when an opportunity of choice is given, morning work is generally better than night work; and lastly—a matter which I should not stop to allude to, but that I know the dangers of an over-driven existence in a crowded, busy town—if a man cannot get through his day's labor, of whatever kind it may be, without artificial support (that means beer or Bourbons, it should be a serious consideration for him whether that kind of labor is fit for him at all.

Harmful Literature.

More harm has been caused by sensational novels of all kinds than can be calculated. Tales of impossible love, romantic devotion, unnatural crimes, lay a foundation in the minds of youth for all sorts of weakness and folly. Would there be so many disgraceful experiments in "high life," think you, if circulating libraries were cleaned of yellow-covered literature? Or so many atrocious murders if shop-windows were not hung with pictorial representations of the "last awful tragedy?" If Satan can't set a man to killing, he will do the next most effective thing, set somebody to describing or painting a murder. There are enough to take the hint. What shall we do about the evil? First, denounce it unsparingly. Use the pen as a sword. Then give young people more healthful reading; interest them in something higher than the woes of Alonzo and Angelina, or the last death throes of Pirate Jack. Take the present generation of the young, and so educate through a proper literature that its taste shall be permanently healthy. There are thousands of standard works of fiction which are pure and wholesome in tendency—educators of the mind. Let the children read them and none others. They'll soon grow to like them, and condemn the floating trash of the day—soon discriminate between wheat and chaff. In all possible ways counteract and prevent the evil discussed. Let not the gallows's beam protrude its shadow across the pages in our libraries, and the prints in our shops, hideous as a nightmare and Satanic in its suggestiveness.

Promptness in Duty.

"I have saved myself a great deal of trouble in my life," writes a practical man, "by always following this simple direction: When you have anything to do, do it." The trouble with the majority of people is that when they have something to do they don't do it, at least not at the right time. They wait and put off, especially if the duty is rather disagreeable, until fairly pressed into a corner and subjected to the greatest inconvenience for the want of it.

It depends very much upon how you begin in life, how you will go on through it. Train your working powers to be prompt, and to go about your work with dispatch. If you have these two qualities well developed, you will "be wanted." There will be situations waiting for you all along.

A young man in a large establishment in the city, received a commission one day to get out a vessel-load of cotton. It was his first commission of the sort, and he felt pleased to be trusted. He resolved to be especially prompt in the performance of it. So he engaged his carts and men over night, giving orders to have them on hand at an early hour. He attended to the business with so much energy and cheerfulness that he infused a like enthusiasm into his men. The business was finished with such dispatch that he had his bills all right and was at his customary post by ten o'clock, when his employer came in.

He looked at the young man a little severely, and asked if he did not request him to get out that load of cotton.

"I have, sir," was the reply, "and there are the bills."

Such promptness was not unrewarded. It was the young man's stepping stone to preferment and a large fortune. Don't take all day to do what might be finished in a few hours.

Married Life in Germany.

In Germany the husband is the king, the wife merely the prime minister. He sits in his arm-chair smoking perennial pipes, and auditing with all the severity of a Lycurgus, the poor little woman's abject accounts. He knows all about the butter and dripping, swears at excesses in soap and sauerkraut, is abusive as to fuel, tyrannical as to candles and red herrings, and terrible on eggs and bacon. A woman is no more mistress of her own house in Germany than you or I (despite the Laureate) are masters of our fate. She is simply an upper servant; nay, of many a gully-born and gently-bred lady it may be said that the dull drudgery of her life is such as no upper servant would endure, such as would be scarcely tolerable to "the maid that does the meanest chores." The maid can at least creep into dim obscurity when her hours of work are at an end; but the lady has to clothe herself in such raiment as her station is supposed to demand, and to leave weariness of the flesh and vexation of spirit in the kitchen with the pots and pans. The lady in black silk (really an "upper servant") who consents to superintend the Browns' gorgeous establishment for the moderate consideration of fifty pounds a year (everything found), and no indelicate inquiries as to perquisites, would scorn to employ herself in the menial manner common to many noble ladies in Germany. Do I not, for instance, remember my neighbor, pretty little Baroness B—, like the maid in the nursery rhyme, standing "in the garden, hanging out the clothes?" Have I not gazed with a tender admiration (of which to this day she is unaware) at Frau von C—'s fair face, as I watched her from my window, ironing her husband's shirt fronts all through a blazing afternoon, while now and again a diamond-drop would roll from her brow and fall, audibly hissing, on the iron? Have I not seen, with a sadness I dare not show, the indefatigable Hauptmannin von Z— baking, stewing, pounding, sifting, weighing, peeling, with an energy that positively paralyzed me at my point of observation? She would chaffer with the peasants who brought butter and eggs to the kitchen door, cheapening their already cheap offerings; she would scold the slavey (who, as we all know, is no slavey at all), tap her girls sharply over the shoulders, and rap her boys over the knuckles, and never ask for change or rest. Who ate all the good things she compounded? I suppose her husband, a big burly man, with a red face, and beery, guttural voice. I could hear him snoring away all the early part of the Summer's afternoon (the windows were open toward the garden), when at four o'clock he would cast his *Schlafrock* and *Pantoffeln*, get himself into regimental clothes again, buckle in his big waist, and go swaggering down to his club, ogling every girl and woman he met by the way. I saw the other day that he had been decorated with I know not how many stars and crosses, and had grown into a Lieutenant-Colonel, and I could not help wondering how it was with his poor little wife, who had been under fire so long; had marched and counter-marched, and come to the front like a gallant little volunteer, always obedient to the word of her superior officer, cheery and uncomplaining. Has she, too, got her slow promotion, and stepped out of the ranks beyond the kitchen range, beyond the whole *batterie de cuisine*, with the order of merit on her faithful, modest little breast? I doubt it. I daresay, if I could look in upon her now, she is still cuffing supplementary boys off to school, lest they should disturb the paternal post-prandial slumbers, and rating the slaveys as energetically as ever. In the households of military men, or in those of the *höhere Beamten*, the womenkind gain little, comparatively little, by the promotion of their lords. No greater independence of action is granted them, no wider sphere or larger interests. Washing days come around as before; the potatoes have to be peeled, the carrots scraped, and the slavey driven; the stocking to be knitted, the shirt collars to be ironed, and the eternal locking and unlocking to go on, with very slight modifications, just as it did five, ten, twenty years ago. The master is decorated, he has new titles, becomes more expensive, generally ornamental and sublime; he goes to the *Ministerium* or the *Kammer*; he sits upon the Bench, or he wrangles in Parliament, or he elaborates the *Kriegsspiel*; he comes in contact with men of different shades and colors of opinion; at the club he reads the daily papers and learns how the world wags; he plays whist, goes to the theatre, and, if he have nothing to do, returns

home again about nine o'clock. Having discussed so far as was prudent, all the political news at the club, he is hardly likely to begin on the state of the outer world when he finds himself once more in the bosom of his family. Besides, women don't read the newspapers; what is said and done in their infinitesimally small circle is more to them than all the huge disasters of humanity; the Kaffeeclack of more significance than Kings or Kaisers toppling to their ruin; the rumor of a scandal is of greater interest than all the vast problems and conflicts of the social and moral universe. And so a little local talk is likely to turn up, and, as it is very local indeed, and as it has been revolving for the last thirty years (on his) and the last twenty years (on her) part (for at five they both knew a fair amount of town gossip), the conversation is not precisely of a nature to make them forget the time, or be heedless of the coals and candles. We are accustomed to think of the Germans that they are a domestic people. The truth is, that of domesticities there is enough and to spare, but of domestic life, as we understand it, little or nothing. Beyond eating, drinking, and sleeping under one roof, the sexes have little in common. The woman is a slave of the ring; for the wife the baking and brewing, for the husband the cakes and ale; for her the toiling and spinning, for him the beer and skittles; for her the sheep-walk of precedent and the stocking of virtue, for him the paradings and prancings; for her the nippings and screwings, for him the pipings and dancings; for her the dripping-jar and the meal-tub, for him stars and garters, and general gallooning, glitter and sublimity.

Toilet in Spain.

The dresses worn by the inhabitants of Spain are varied and tasteful, and in some respects totally different from those belonging to other nations. In a work entitled, "A Summer in Andalusia," we find the following remarks upon the dress of this nation:

"The mysterious mantilla is always black or white, the former being the prevalent color, and invariably worn in winter; the white has a very pretty effect, especially if the wearer be a *rubia* or of fair complexion. The white are always of lace, but the black are of all materials—from the rich lace of the upper ranks, the silk with a wide border of lace, of the tradesmen's wives, or edged with velvet, a grade lower, to the coarse mantilla of *punto* of the lowest classes." The *basquina* of Cadiz is pretty much like a modern English gown, with full sleeves; though these are short and do not cover the arms. It was formerly adorned with deep flounces and trimmed with a profusion of braid; but such are now rarely seen except on the stage or in the interior of the country. Though in winter the *basquina* as well as the mantilla is usually black—the ancient and genuine hue of the whole costume—still in summer gowns of other colors are worn, either white or of some dark shade of purple, crimson, brown or green. The legs and feet are cased in net-worked stockings and sandaled slippers."

One peculiarity in the dress of the ladies of Spain consists in wearing fresh flowers in the hair, which form a beautiful contrast with the dark complexions and mantillas. The comb worn in the hair is generally about the size of those used in this country. The fan is as universally seen as the mantilla—a Spanish woman is seldom without it, even within doors. The favorite fashion of parting or dressing the hair among the Andalusians consists in parting it in the middle, smoothing it over the forehead and bringing it down into one large, thin curl flattened against each temple, and called the love-twist.

In the streets the women wear veils instead of caps or hats. These veils, very unlike the gossamer texture of those worn by ladies of most other nations, are made of blue or pink flannel. This, with a black petticoat of stuff forms the principal part of the costume.

The Catalonian ladies are great *elegantes*; they wore a few years since a black silk petticoat with a small hoop. The body of the dress was made so low in front that the shoulders were quite uncovered, and the veil so stiffened out with wire that it formed two arches, one on either side of the head.

In Castille the women have large clumsy sabots, a dark gown, thrown back and tied behind; an apron of blue and white, and a large veil fastened to the head with streamers of blue ribbon. The monster caps of the men are frequently faced and ornamented with red or blue.

Ozone.

BY JAS. P. DUFFY.

It was discovered some years ago, by a German chemist, that when water was decomposed by voltaic electricity a peculiar, pungent smell was developed. More recently it has been observed that this odor is similar to that evolved by wet phosphorus when exposed to the air, and that it is due to a peculiar modification of oxygen, the name, *ozone*, being derived from a Greek word meaning *to smell*. This chemical is best prepared by an electrical machine constructed for the purpose; but it can also be secured by the following method, which will be found more convenient for most persons:

Place a piece of phosphorous (the surface of which has been scraped clean under water with a knife) in a clean bottle. Half cover the phosphorous with water, close the bottle with a loose stopper, and place it in an atmosphere of 25°. In about a quarter of an hour a little column of smoke will be seen to rise from the phosphorous, and the peculiar odor of ozone will gradually pervade the bottle.

When pure, ozone is an offensive, poisonous gas—air which is charged with it being irrespirable, and producing effects on the human body similar to those produced by chlorine, and which have already been described in these columns. So powerful is its smell that it can be recognized in air containing only a millionth part of it. Upon its property of instantly destroying the iodides of the metals, is based a ready method of testing its presence; the plan being to thrust a moistened slip of blotting paper, which has been saturated with starch and iodide of potash, into the bottle of ozonized air above described, when the paper will instantly acquire a deep blue tint.

Ozone bleaches and destroys vegetable matters, is a powerful disinfectant, and possesses an intense power of rusting all the metals, excepting gold and platinum. Even silver is, at ordinary temperatures, rusted by it, and covered with a brown coating of an oxide of silver. When such substances as saw-dust, charcoal, or milk, are thrown into a vial of ozone, its odor instantly disappears. Although so offensive when pure, ozone instantly destroys a great many offensive gases, and is recommended as being well fitted for the purification of sick-rooms and hospitals.

A Debtor's Prison.

Old fogies sometimes complain of the degeneracy of modern times and the heartlessness of modern men: they say that in the eager race for riches we are apt to pay no attention to those who have fallen in the race, but keep on right over them, without stopping to help them on their feet again. In order to refute this charge we have but to contrast the manner in which poor debtors were used in former times, with that of the present time. When a person was arrested he was first carried to a sponging house, where he had to pay the most exorbitant charges, and then he was conveyed to prison. The most celebrated prison for poor debtors was the Fleet. There the person arrested had to pay for everything, even for his room. The office of superintendent was sold at a high figure, and the way the person who bought it made it pay, was by asking extortionate charges for everything. The manner of living in this place is described in an ancient copy of verses. The first night of the prisoner's sojourn is passed in feasting at his expense, provided he has money enough to pay for it. The poor people were in the utmost distress in this place. There is an account of a man who got his living by training a pet cat to catch mice and bring them to him, upon which he lived. A man who dared to ask the keeper for a purse of money that had been taken from him, was placed in a hurdle and dragged about the yard with his head trailing over the stones, "by which ill usage he became not altogether so well in his intellects as formerly." Visitors were not allowed to bring liquor into the prison, but dram shops were kept within the walls under the name of tape shops. For two centuries this prison continued to be a very hell upon earth, and the terror of all poor debtors. The most conservative man alive cannot but admit the superiority of the prisons of the present day over those that flourished a century ago, while the condition of the poor of our day is not at all comparable in wretchedness with that of the olden time.

Lost to Society.

BY ROSA V. RALSTON.

Under this head may be classed those enthusiastic young couples who experience an all-sufficient bliss in the companionship of each other, and a feeling of sympathetic mental composure not to be met with elsewhere. They usually eschew society altogether, regarding the pleasure it affords as entirely too insignificant to cope with the sublimity there is in a dual beatitude. Their visiting, whenever they do deign to show the light of their countenances to their fellow beings, is mostly among their own immediate relations. All efforts to draw them out are treated with an indifference that silences any further attempts. It makes no difference to them what is going on in the outer world, so long as they continue to enjoy the exclusive blessings contained in this absorbing union of mind and sentiment. A death in their midst disturbs their equanimity about as little as a birth. No matter who is born, who marries, or who dies, they go round and round in the tread-mill of domestic felicity just the same. They regard their home as an earthly paradise, too good for the habitation of common mortals other than themselves; consequently, they invite but few visitors. And if you should stray within their sacred precincts, you are ill at ease, lest you disturb their devotion. Literally, their abode is a place of worship, in which each, in the estimation of the other, is installed, the one a god, and the other a goddess.

Their behavior is truly mirth-provoking to the outsider, and an interesting study to determine the cause of this affinity. The newly-made bridegroom may be as homely as D. is himself, yet the affection of the wife is just as tender and clinging as though he were an Apollo. He may be what in the opinion of the world constitutes a dolt, yet her satisfaction in her treasure is just as supreme as though he were endowed with an intellect of the highest order. On the other hand, the physical construction of the wife may be such that she is absolutely repulsive to most other people; still in the estimation of her husband, she is as lovely as Venus.

It is the delusion under which these apparently ill-matched couples are laboring, that makes their behavior so ludicrous. If your taste is so easily satisfied that you can fall in love with a pretty hand or foot, in spite of the deformity of the face, don't let the world see that you have been deceived in believing the face pretty also. They may then think you have been captivated by some trait of character that they have never discovered; hence, you may keep up your reputation for good judgment.

There is one thing, however, that will save this necessary attachment—time. Leave the devoted couple to themselves for a few years. After awhile when they would enter society and invite social intercourse, they find, alas, that they have few friends.

Bashan Shepherds.

"As we sat and looked," writes the gifted author of "The Giant Cities of Bashan," "the silent hillsides around us were in a moment filled with life and sound. The shepherds led their flocks forth from the gates of the city. They were in full view; and we listened to them with no little interest. Thousands of sheep and goats were there, grouped in dense confused masses. The shepherds stood together until all came out. Then they separated; each shepherd taking a different path, and uttering, as he advanced, a shrill peculiar call. The sheep heard them. At first the masses swayed and moved, as if shaken by some internal convulsion; then points struck out in the direction taken by the shepherd, these became longer and longer until the confused masses were resolved into long living streams, flowing after their leaders. The sight was, perhaps, one of the most vivid illustrations which human eyes could witness of that beautiful discourse of our Lord, recorded by John: 'And the sheep hear the shepherd's voice; and he calleth his own sheep by name, and leadeth them out; and when he putteth forth his own sheep he goeth before them; and the sheep follow him; for they know his voice, and a stranger will they not follow; for they know not the voice of strangers.—John x, 3-5.'

IT NEVER troubles the wolf how many the sheep be.

Difficulties in Learning Foreign Languages.

BY B. C. MORSBEE.

If there is anything in our language that puzzles a Frenchman, it is the many significations of the same word. The perplexities of a persevering Monsieur arising from our word "fast," are more numerous than one would at first suppose, as for instance:

"Zis horse, sair, he go queek, what you say?"

"Yes, he is a fast horse."

"Ah! pardon Monsieur, but your friend say he make fast his horse, and he tie him to a post so he no go at all."

"Very true, he is made fast by being tied to the post."

"Ah! zat cannot be, he cannot go fast; but what you call a man zat keeps fast?"

"O, he is a good man who does not eat on fast days."

"But I have seen one *bon vivant*, who eat and drink and ride and do everything. Ze people say he is a bad man—he is fast."

"True, that is called living a fast life."

"Ah, *certaintment*, zen all ze days of his life moost be fast days."

"Certainly, they are."

"Eh, bien! does he eat every day?"

"Certainly he does."

"Zen how can he keep fast?"

"Why, he keeps going, to be sure."

"*Mais, tenez!* You tell me to stand fast when you want me to keep still, and go fast when you want me to run, and keep fast when you no want me to eat, and live fast when you want me to eat. What absurd language this."

And it is an absurd language. Who has not been puzzled to pronounce hundreds of words in the English language? Where is the person who can correctly spell a list of one hundred catch words without previous study? In order to learn to spell correctly, we have to learn a dozen rules and a thousand and one exceptions to those rules, and even then not one person in a hundred feels competent to write an article for the press without he has Webster or Worcester by his side. In the Spanish Academies it is customary to say of any non-sensical project, "It is as absurd as English spelling." And it is no wonder that, not only Spaniards, but all foreigners make so much fun about our spelling, our "ale table," and our idioms.

Speaking of idioms reminds me of an anecdote I once read. A Frenchman just from France landed on the shores of America. He was soon accosted with, "How are you, sir?"

"How are I," replied the puzzled Frenchman; "vat you mean?"

"I mean, how do you do?"

"Do vat, sair?"

"How do you find yourself?"

"I no lose myself; vat you mean?"

"I mean how do you feel?"

"You just feel of me and see, sair," said the enraged Frenchman, stripping off his coat, "vat you thinks I is, any way, sair?"

It is strange that in a language that is spoken by so many people and which will, probably, sometime be the universal language, if a universal language is ever adopted, that we find so many gross absurdities. What we need is a thorough revision of the English language, although it is true that, if thoroughly revised, it would almost be a new language. But it is not the French who are to correct us in this respect, for their language is almost as "barbarous" as our own, as the following anecdote may show:

A clergyman in Virginia, having, as he supposed, acquired a perfect knowledge of French, visited Paris. Expecting to have no difficulty in understanding French, or making himself understood, he went to a hotel where English was not spoken. On telling the landlady that he wanted a room, she asked him if he was a "*garcon*." This was the first question he had been asked, and it was a puzzler. "*Garcon* means a boy," said the clergyman to himself, "but I am forty-five. It also means a waiter, but she surely does not take me for one because of my white cravat." He could not answer. He afterwards learned that "*garcon*" also means a "bachelor," and the landlady simply meant to inquire whether he wanted a single or a double room.

And this reminds me of a little adventure which I had a few months ago. Taking up a French paper I read an account of a ball in Paris, and what was my astonishment to find that a certain lady wore a dish-cloth over her shoulders, and that her dress was trimmed with the same material. Another lady had her entire costume of dish-cloth. I was astonished. I had heard of many strange articles of apparel worn by the ladies of Paris, but to appear at a ball, clothed only in dish-cloth, capped all the stories I had ever read or heard of. "What will they wear next," I said to myself, and I sincerely hoped that our ladies would have more taste and good judgment than to follow the example set by those ladies. The word used was "*Torchon*," and the only definition given in my dictionary was "dish-cloth." I examined four other dictionaries, and the only definition given was dish-cloth. Thinking there must be some mistake, I carried the paper to a French dressmaker. When I told her of my difficulty, forgetting her gentility, she burst into a hearty laugh, and then told me that "*Torchon*" also signified "Cluny lace," a very costly and elegant article of dress.

One great difficulty in learning to converse with foreign people and in a foreign language, is that very few people of any nationality speak correctly and grammatically. For instance, in English, if we ask an ordinary person a question the answer of which he does not know, he will say, "I dun no," or "I'dno," while the correct answer to the question would be, "I do not know." It is just so in French if we look in a French grammar for that expression, we shall find it says: "*Je ne sa pas*," while if we ask a Frenchman, he will say, "*Sa pas*."

After I had learned to read French, and to converse with my classmates in French with comparative ease, I went to Montreal for the purpose of learning the French accent. A few hours after my arrival I attended an evening meeting, and, though I paid the closest attention to the whole sermon, I understood but four words during the whole evening, and this is a fair sample of the progress I made the first week. By constant study, I was able at the end of my second week to understand some of their lingo, and in three weeks I discovered that, except the accent, I spoke much better French than the Frenchmen themselves.

When I told this to a German of my acquaintance, he told me that he experienced the same difficulty in learning French, and also English.

Cycles.

There seems to be a curious system of cycles which regulates almost everything in the material and even moral universe. We all know that insects seem to have their particular cycles and thus disappear in certain localities. One year the greedy currant-worm could fairly be heard munching away at the fine, thrifty bushes, and leaving them as bare as if swept by a fire. Another year I remember a pest called the fire-worm, which devoured almost every green leaf in the oak-woods we used to ride through. One would suppose they would have left behind them millions of eggs to develop another season, but that was the last we have heard of them or the currant-worm. May be the little germs are biding their time and waiting their next cycle, but we hope it may not come in our day.

I have sometimes wondered how it was that boys all over the country, as far as one can learn, break out at one and the same time in an epidemic of top-spinning, marble-shooting and kite-flying. It is not always when the season would seem most propitious, but I believe it is about universal.

If there happens a fearful disaster at sea, there is almost sure to come news of another and another, from remote quarters of the globe, dwindling down to smaller wrecks on inland waters, until the cycle seems to have passed. We all know, too, how fast one railroad disaster seems to follow upon the heels of another. But it is a comforting view that the mischief will not be of long duration, and even the "hard-times" cycle is passing over at last.

German manufacturers are continually engaged in purchasing fish-bones, gathered along the Norwegian shores near extensive fish-curing establishments. These are pulverized and converted into fertilizers. It is suggested that arrangements be made for utilizing the bones from the establishments in Newfoundland.

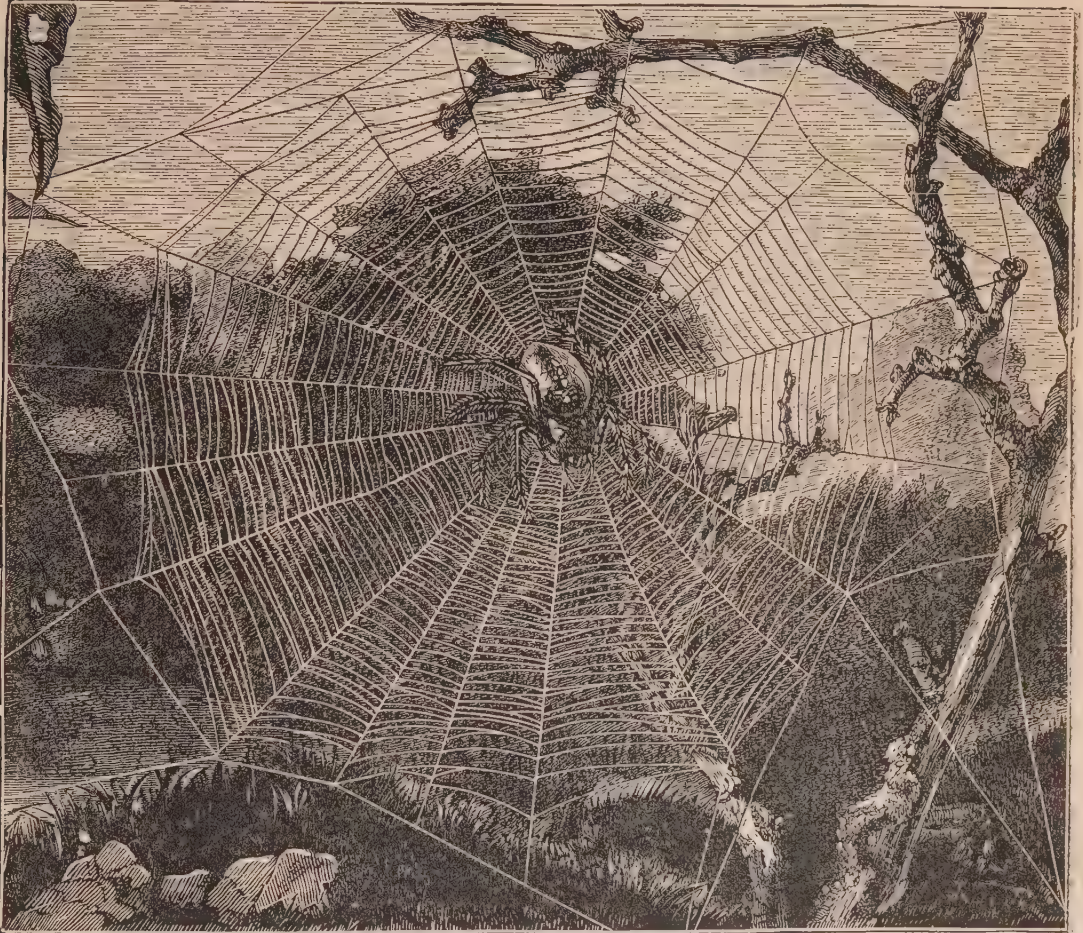
SPIDERS AT HOME.

"Come into my parlor,"
Said the spider to the fly."

We are going to have a talk about spiders, although people think they are ugly things, and too often either run away from them or kill them. There are spiders that are wonderful, others that are amusing, others useful, others beautiful; and, perhaps, if we were wiser, we might see all these good qualities in all spiders.

First of all, they are wonderful. The large precious stone in a brooch is polished and cut, so that it has many facets turned different ways to reflect the light. Well,

Every thread is arranged in order, and it looks like a fairy wheel of thinnest gossamer.— When the spider makes it, he begins with the threads that would be the spokes of the wheel, running out from the centre to the edges. There are generally between twenty or thirty of these and he goes over them again and again to make them strong, and fastens them all well together in the centre. Then, going to the outer edge, he begins walking around it, leaving his thread after him wherever he goes, and making it fast to every spoke before he proceeds to the next. Thus gradually he works round and round, the circles narrowing



THE GARDEN SPIDER.

in the same way the eye of the common spider has four thousand of these little sides or facets. He can see through every one of them, yet it is all only one eye, so small that you would have to look closely to see it. When you hear that he has eight of these eyes you can imagine how little trouble it gives him to see the flies and midges; although he rests so seemingly stupid in the middle of his web.

The silk worm, you know, produces his silk out of two little holes in his mouth. The thread the spider spins comes from hundreds of holes in his body. Hundreds of threads, too small for our eyes to see, are twisted together into every single thread that a spider weaves.

You know how even the web is when it is per-

fect. Every thread is arranged in order, and it looks like a fairy wheel of thinnest gossamer.—

When the spider makes it, he begins with the threads that would be the spokes of the wheel, running out from the centre to the edges. There are generally between twenty or thirty of these and he goes over them again and again to make them strong, and fastens them all well together in the centre. Then, going to the outer edge, he begins walking around it, leaving his thread after him wherever he goes, and making it fast to every spoke before he proceeds to the next. Thus gradually he works round and round, the circles narrowing

until he and his thread are in the center, and the web is finished.

There are some spiders that construct a sort of ladder of silk, going back among the leaves close by, and, at the end of it, they lay hidden till their prey is caught; but usually the spider sits in the middle of his web, giving it a shake now and then to make sure that it is all strong. The web is sticky, every thread being damp with a gummy substance, so the moment a fly touches it he is stuck fast. If the fly is a large one the spider clasps it with his long legs, and strikes his sharp nippers into its body. Instantly the fly ceases to struggle; it is dead. The spider has poisoned it by a fluid which lies hidden in his front claws. Now he cuts away the threads of the web close to his victim, and then, twirling the dead fly round and round, swathes him in new threads. Having thus made up a compact

bundle, he attaches it to himself, and, at his leisure, carries it some hiding-place and enjoys his meal. Those very small flies called midges, which whirl about in swarms under the trees in summer, are caught in vast numbers on the gummy webs. Sometimes more than a hundred of them are, in a single day, lodged in one of these traps, and when the owner wants them he collects several, binds them together, and carries them off in lots.

Spiders fight, and eat each other, when they can; and for all sorts of insect food they have amazing appetites. Here is the account of the bill of fare of one which a naturalist watched and fed with dead insects:—Half-past five in the morning, an earwig; at seven, a fly; at nine, a daddy-longlegs; at one, a big blue-bottle or blow-fly; and after that the spider employed himself in carrying off in lots together, and eating, more than a hundred midges, which had been caught in his web during the day. The gentleman who took the trouble to watch this spider says that, taking into account the size of a man, compared to the size of a spider, a man with a similar appetite would eat thus:—At daybreak, a small alligator; at seven, a lamb; at nine o'clock, a young giraffe; at one, a sheep; and after that, about a hundred larks. But after all it is hard to call the spider greedy, when we learn what work he has to do. The length of thread a spider spins in a week making new webs (for one web usually only lasts a day), binding up his victims, and going about from place to place, always leaving a thread after him, is said to be nearly two hundred yards, and all this comes out of his own small body.

Dr. Lincecum describes the marvellous art of the gossamer or ballooning spider in the construction and navigation of her aeronautical ships. In Texas, according to the author, December is the month for these ballooning spiders to emigrate. When they intend to make an ascension, they fix themselves on some extreme point of the branch of a tree, or weed or corn-tassel, then carefully spin out a lock of white gossamer, five or six inches long, and two inches wide in the middle, tapering toward the ends, holding it all the time in the gentle breeze by a thread two or three inches long, which, being attached to the end of the selected point, detains the balloon until it is finished. They then spin out at the bow two lines, thirty or forty feet in length, and another of twenty or thirty feet at the stern, then cut the cable and sail away on an inclined plane. There are a mother and half a dozen or more young spiders aboard every balloon, and thus the species are scattered over vast districts. These tiny aeronauts choose for starting on their voyage a clear day, temperature 60 deg. Fahr., wind gently from the south. At about 1 p. m. they may be seen sailing with the wind. Toward 4 p. m. the spectator will observe that the balloons are beginning to descend. When the streamers strike some tall weed or grass the air ships are made fast and the passengers instantly leap out, spinning out a thread as they fall, thus landing in safety.

When a spider is attacked, he saves himself by falling from his web and hanging by a thread so fine that it can scarcely be seen. The danger being gone, he climbs up the thread again, hand over hand, like a sailor going up a rope. At other times he drops from the web, leaving no gossamer rope for his return. He lies on the ground below, with his legs gathered round him into a little ball that can scarcely be distinguished from the loose earth. If you pick him up he often keeps perfectly still for minutes together, till you think he must be dead, and throw him away. Dead, indeed! The moment you are gone he spreads out his eight long legs, and runs away.

We sometimes are inclined to believe that spiders can fly; but that is impossible, for they have no wings. How is it, then, that they pass through the air, moving from branch to branch, or rising from the top of a garden wall? If we look closely at a spider passing from place to place, we can see that he is climbing along a thread, or that it is floating up with him. When he wants to go from branch to branch he shoots out a thread from his body, the wind car-

ries it on, and its gum makes it to adhere to whatever it touches. Then the end being fast he moves along it.

Sometimes this thread is carried up into the air and wafted hither and thither, and the spider, letting go his hold of the ground, is carried upward—the least breath of air being quite sufficient to raise his floating cord and carry him away. Without the assistance of this filmy silk he cannot ascend an even surface as a fly can. If you put a spider into the bottom of a perfectly clean well-polished glass, he will make useless attempts to walk up its sides, and then he will spin a web against it, a sort of ladder, which he ascends step by step as he makes it. You will require very good sight to see this web against the glass, but a strong magnifying-glass will show it to you. It is quite a different thing when a stray spider stand on the ceiling back downwards. There he has an uneven surface which he can easily seize with his claws.

In striking contrast to the jolly open-air life of the garden spider is the dismal existence, that can hardly be called life, passed by the common house spider. Constructing a web of strong cloth-like texture, slung like a hammock in some out-of-the-way corner, her life is spent in a state of chronic semi-destitution, waiting for the infatuated fly that may accidentally drop in. Her powers of endurance must be something wonderful. When hunger can be borne no longer, this spider—a determined cannibal when nothing better can be had—will start on a hunting expedition after other spiders of a smaller kind, exercising in the nefarious quest a good deal of cunning.

The house spider passes the winter in both the egg and perfect form. The writer on the 10th of February roused a large torpid house spider from its sleep, which slowly and with much difficulty made its way up the wall to a crevice in the ceiling, evidently thinking, with the sluggard, "You have waked me too soon; I must slumber again." On the same date, February 10—a cold, frosty day—a cocoon that was observed to be turning darker colored than others was opened, and found to be full of perfectly formed young spiders, nearly black. Some of them began to move, and one fell out of the nest on to some paper beneath, when, on moving the paper, the young straggler was found hanging to it four or five inches below, proving that as soon as spiders are hatched they have the power of attaching themselves to any object they touch, by a line of their own making, strong enough to bear them. They evidently knew it was too early to separate, for, on being left to themselves, they were soon after found huddled together in a round heap, each in the shape the old ones assume when simulating death.

There are *Water Spiders*, which inhabit shallow stagnant pools and marshes. When they dive under water a little air is retained between the hairs with which they are covered, and this, making a bubble beneath the surface, keeps them alive. The female spins round her cell of silk, of a form something like a thimble, or half a small bird's-egg. It is filled with her bubble of air, so that the water cannot get in; and in this silken diving-bell she lays her eggs. It is from eggs that both land and water spiders come. Often the mother shows great care and affection in her own insect way, carefully guarding the tiny cocoon in which hundreds, perhaps thousands, of her eggs are enclosed. Some species carry it between their fore-claws; some keep it attached to their bodies; others place it in crevices of walls, or roll it up in a dead leaf. There is one kind of spider that lives in the woods, and binds together the fallen leaves, spinning its threads round them to make a nest for itself. It is remarkable that the dormouse, when it is building its own little nest, takes these spiders'-nests to make its roof. In some places where people have searched, the roof of two out of every three of the nests of dormice were formed of a spider's-nest of leaves.

The following touching anecdote is told by Mr. Moggridge, who in his studies in Natural History has been in the habit of immersing, for preservation, his different specimens of spiders and ants in bottles of alcohol. He saw that they struggled for a few minutes; but he thought that sensation was soon extinguished, and that they were soon free from suffering. On one occasion he wished to preserve a large female spider and twenty-four of her young ones, that he had captured. He put the mother into a bottle of alcohol, and saw that after a few moments she folded up her legs upon her body, and was at rest. He then put into the bottle the young ones, who, of course, manifested acute pain. What was his surprise to see the mother arouse herself from her lethargy, dart around to, and rather her young ones to her bosom, fold her legs over them, again relapse into insensibility, until at last death came to her relief, and the limbs no longer controlled by this maternal instinct, released their grasp and became dead! The effect of the exhibition upon him is a lesson to our common humanity. He has never since repeated the experiment, but has applied entorform before immersion.

Judging from the above, the spider is certainly superior to the human animal, in the fact that alcohol does not destroy her natural affection.

Besides the spiders above alluded to, there are many other kinds; for instance, the *Harvest Spider*, which appears in autumn. It is very small, with long hair-like legs, and it does

not seem to mind a bit if it loses its legs, they grow so quickly again. In Hampton Court Palace, near London, Eng., there is a race of spiders which is found nowhere else. They are called *Cardinal Spiders*, after the famous Wolsey, who once lived there. There seems to be another tribe, which live in the great cathedrals and churches on the Continent, and find their food in the oil which adheres to the lamps, or is left in them when they are put out. If we are to believe all the stories that are told, the oil agrees famously with those spiders; for instance, it is said that one which lived long ago in Milan Cathedral weighed no less than four pounds!

The saying that no created thing is without its use was somewhat curiously illustrated—at any rate so far as spiders are concerned—at a sale which took place a short time ago in London. The business and premises to be disposed of were those of a quill-pen manufacturer, and the presence of vast quantities of well fed spiders in the establishment was accounted for by one of the old employees in a somewhat curious manner. It would appear that the feathers of the goose-quill are infested by a most destructive species of moth for which spiders have an especial predilection, and therefore quill-pen manufacturers keep these insects upon the same principle that a good housewife keeps a cat. Since the days when the perseverance of a spider read Robert Bruce the lesson he afterwards utilized so well at Bannockburn, no pleasanter story has been told of this ill-favored insect.

A Curious Pair of Jaws.

Don't you think it must be a curious pair of jaws that can bite off a chunk of cold iron as easily as you can bite a stick of candy?

You can hardly believe it? Wait till I tell you.

One of the most interesting places I ever visited was a room filled with these monsters with the sharp steel jaws, called nail-machines.

In the first place, the noise made by several of these machines in one room is something absolutely fearful. I wanted to stuff my ears with cotton; but I thought that would not be very civil to my guide, and after a little I got used to it, and soon found myself so interested that I really forgot the noise.

Some machines nip off the tacks so fast that a stream of finished tacks run down a tin tube into a reservoir—thousands in a minute.

Listen to the ticking of the clock, and reflect that every time it ticks at least twenty tacks are snapped off. But I must tell you how they do it.

First, the iron bar, as it comes from the iron-works, is put between immense rollers, which flatten it out as nicely as cook can roll out pie-crust with a rolling-pin. The bar of iron is thus made into a sheet, just thick enough for the nails they want to make. It goes next to the slitting-machine, which makes no more fuss about slitting it into the proper widths for nails than your scissors make about cutting paper.

It is cut a little longer than the nail is to be, because the heads are to be made.

When the strips of iron are all ready, a man takes one and slips the end into the steel jaws I told you of.

These jaws are worked by steam-power, and instantly they bite off a nail, while a furious little hammer springs out suddenly, and with one blow on the end of the bit of iron flattens it, and thus makes a head.

If you want to know what a blow that must be, take a piece of iron and try to pound a head on it yourself.

The instant the head is made the jaws open and the nail drops out finished. Of course it is done much quicker than I have been telling you, for a machine can make brads (which I needn't tell the boys are small nails without heads) at the rate of three thousand a minute.

It is said that "figures won't lie," and I hope they won't; but I must admit it is hard to believe that story.

After the tacks come out of the machine, they are "blued," as it is called. It is done by heating them in an oven or on an iron plate.

Then they go to the packing-room where one girl can weigh and put into papers two thousand paper of tacks in a day.

That's another tough story, but my guide assured me it was true.

How many kinds of nails can you name? You will probably be surprised to hear that two hundred kinds of nails are made in one factory, beginning with spikes which weigh nearly half a pound each, and ending with the tiniest kind of tacks, not a quarter of an inch long.

Men didn't always have machines to make nails for them, and of course they had to make them by hand. That was no such easy matter; and, in fact, they couldn't make them of cold iron, but had to heat every one.

In some parts of England they are very slow to get machinery, and the ignorant people, thinking their trade is to be spoiled, will break up and destroy any machinery that is brought there. So they work at nail-making as their grandfathers did,

Every man has a little forge—such as you have seen in a blacksmith's shop, if you live in a village—and a small anvil. Every child is put to work to make nails at eight or nine years of age, because they earn so little that every one of a family must help earn his bread. Of course these children have no time to learn to read, and many grown men and women can neither read nor write.

This is the way they make the nails: They buy iron rods just the right size for the nails they make—for one family always makes the same size of nail. They take one of these rods, heat it red-hot at the forge, lay it on the anvil, and cut off the length of a nail; then, laying away the rest of the rod, they take the piece they have cut off, pound it out to a point at one end, and pound on a head at the other. A very slow operation, you see, when you think of how the machines snap them off cold. A whole family scarcely ever earns more than five dollars a week at the work, and part of that has to go for the coal it uses.

One of the nail factories in our country that I have read about uses one hundred and fifty tons of iron in a week, all of which is bitten up into nails.

Business at the New York Post Office.

The amount of business transacted at the New York Post-office is marvellous; it is nearly double that of any other city in the United States. The average number of domestic letters received and distributed daily is 300,000; the number of foreign letters received daily averages 30,000, and the number dispatched 35,000; while the number of local letters received and distributed is about 120,000. No wonder that many facilities and conveniences are needed for such an extensive business; and the commodious arrangements of the new Post-office will be fully appreciated not only by the outside public, but by the inside workers. There are 5795 lock-boxes for letters, and 372 lock-boxes for newspapers. In the Post-office proper there are 600 clerks; and at the Post-office and the stations there are in all about 1300 employees; and no less than 390 carriers are employed. Great executive ability and exact, detailed system are necessary in the management of the vast and complex affairs of the postal department. In order to facilitate the distribution of letters, arrangements are made so that the public can help a little in this matter; and it is worth while for every one to understand how to mail a letter in this great Post-office. On the Broadway side of the building are the drops for domestic letters. There is a drop for every State in the Union, and beneath it a drop for the principal city in that State. Beneath these is a slide, into which is inserted a card, containing an announcement of the time when each mail closes. Next to the State drops is the drop for city letters. On the Park Row side of the building are arranged drops for foreign letters, there being a separate receptacle for each country. Separate drops are of course provided for newspapers, which are all carried to the basement, and there assorted and mailed. If the letters are put into the proper drops by the public, it will be possible to delay closing the mails perhaps fifteen or twenty minutes beyond the time when they had hitherto been closed, which to business men would be an important matter.

In this connection it is interesting to know what precautions are taken against the loss of a letter. Every clerk is held responsible for every letter found under or about his table. There is, of course, a great deal of waste paper in the Post-office, but all the debris of the department is thoroughly searched by one person. It is first put on a large sieve and freed from dust, and then a careful search is made for any letter that might have been dropped among it. But those who "lose" letters in the mail should be careful how they throw the blame upon the Post-office Department. Thousands of letters are not legibly and correctly addressed. Some have the name of the person wanting; often the town or State is omitted; and, strange to say, many letters find their way into the Post-office without a single word of any kind on the envelope. Letters cannot be too carefully and plainly addressed.

ABROAD WITH NATURE, OR, OUT-DOOR LIFE.

Recreation of some kind is absolutely necessary to the health of the human body and mind, and in summer we prefer ours along the clear running streams of the woods; or the hills and mountains alive with Nature and her works. One important part of this recreation is to get away from the congregations of humanity, to be alone, or almost so. Byron, when he said:

"There is pleasure in the pathless woods,
There is rapture on the lonely shore;
There is society where none intrudes,
By the deep sea, and music in its roar,"

expressed perfectly the feelings of every one who desires at times to be alone with Nature, to study her moods, delight in her sequestered spots of beauty, dressed and guided only by her lavish hand. What endless joy they furnish to the artist, to any human soul who has an eye to appreciate her handiwork. Who does not long for power to put upon canvas some of the grand panoramas—the cosy nooks and pretty pictures that are spread continually before our eyes. Few of us however, are thus gifted. But there are those who absorb into the mind and transfer to canvas some of her grandeur. We have in mind at this moment the pictures of Albert Bierstadt, a landscape painter, who roams over the mountains, dives down into the valleys, and studies nature on the plains. Last winter, accompanied by his friend (Lord Dunraven), he was sketching in the Rocky Mountains. To do this, he leaves a beautiful home on the Hudson, regretfully says adieu to a beloved wife and children to satisfy an artist's craving for solitude and nature. He loves it, and those of us who have seen his beautiful paintings can realize with what pleasure he woos Dame Nature and her works.

"The man who oft has set his face
In many a solitary place,
Against earth, the wind, and open sky."

with intense desire to transmit the brilliant dyes and effulgence of light in which his soul delights to canvass. Now he stands on some mountain's brow, enraptured with the magnificent view of plain, river, and woodland, extending miles on miles in every direction; and again in some narrow gully or ravine, of which one side may be a grassy slope, the other thickly clothed with the trees of the forest, and where a tiny but never-failing stream in the bottom keeps the shrubs and plants that grow in profusion around it, in full leaf and flower until late in autumn.

Round and about this silent pool the ash trees
Bend down in thirsty eagerness to drink;
Amid their gray-green leaves show, keenly vivid,
Long feathering laurel-sprays that clothe the brink.

High up in air, some thirty feet or over,
A wild white rose above the footpath clings,
Fearless she clasps a tough, unyielding ash trunk,
And o'er the pool gay wreaths of blossom flings.

Here seated, perhaps, on some mossy stone, or the trunk of a fallen tree, he feasts his eyes on the picture before him, and numbers the tints so exquisitely wrought into such a glorious symphony of color. He raises his eyes to the rich color in the woods alone—perhaps tinted by early frosts. Sees the great oaks with their magnificent leaves, some a deep crimson, some scarlet, others still green; looks at the dark pines and hemlocks, their trunks and branches twined with gaily colored leaves and berries of some bright creeper; marks the white stems of the birch and poplar, and the gray and mottled trunks of the other trees. Glancing up at the lovely blue sky overhead, at the golden sunshine falling every where with such soft ethereal radiance, he longs to in press the picture indelibly on canvass. Albert Bierstadt's artist soul loves these scenes, and because his mind becomes so absorbed in her works, he is enabled to paint such pictures as his "Sunset in Cali-

fornia," "The Storm in the Rocky Mountains," "Laramie Peaks," "The Cathedral Rocks, Yosemite," "A view on the Sierra Nevadas," exhibited at Berlin in 1869, (where it received a golden medal); "The Emerald Pool," and "Donner Lake," were exhibited at the Vienna Exhibition, and we saw at our own Centennial, his "Big Tree of California," and the "Settlement of California at Monkrey." These wonderful paintings were copied from nature, and in order to paint them truthfully, he spent months in wandering over California, the Rocky Mountains, and the West. Morning after morning he arose at four o'clock to secure the desired effect in light and shade. Mr. Leland Stanford, the Pacific Railroad millionaire of San Francisco, has recently given Mr. Bierstadt a commission to paint a picture for \$10,000, and similar commissions are frequently given him. His reputation is made and his fame gone abroad. His pictures are sought and prized, bringing a high price, and why? Because he loved Nature, and in the enthusiasm of a painter, studied her various moods, and had the power to paint them. The possession of one of them is a source of untold pleasure—one returns again and again to drink in the beautiful landscape, so truthfully and artistically portrayed by the genius of the artist. Would that the city people saw more of the green fields in summer and the quiet beauty of winter scenery. Nature purifies and ennobles the soul. A dear friend of ours frequently says, "People should live half the year in the country, that they may have time to think and become humanized. We of course cannot all become great painters, but we can appreciate and enjoy the beautiful growing world, spread out by a beneficent Creator for the joy of our eyes. He offers to teach us by the most wonderful, the most interesting of all books, which is simply all things that we can see, and hear, and touch, from the sun and stars above our heads, to the mosses and insects at our feet.

"Now, America is full of appreciation of natural outdoor life. The cabin and tent stand so near the cities that they are a constant temptation to us all to be less urban than we otherwise would be. The prairie and the hill alike invite the book-worm and the banker to leave the library alcove, and the seat of the money-changer, and come to the smooth level and the green spaces that they represent. The pointer wags enticement to his master to leave his office and tramp through the brown stubble. The horse neighs the clergyman an invitation to mount his back, and scour along the roadways beyond the reach of pavements, and go ambling down quiet lanes, with fragrant hedges on either side; with the scent of growing woods and smelling earth, or of withered leaves and dried grasses filling the air. The rifle calls the mechanic from his bench, and the student from his study, to the breezy ranch, where it teaches him self-control, suggests the need of temperance, and stirs his blood with the tingling friendly rivalry. The rod looks its silent exhortation from the wall along which it is stretched, full jointed as when we made our last cast, and landed the last trout or salmon. The skates, from out their flanneled encasement, say, "Come to the pond; the ice is blue, the wind is keen, the possibilities of manly and exhilarating pleasure are superb. Come, leave your heated rooms, arm your feet with my shining blades, and from a clumsy, slow-moving animal, you shall be in motion graceful as a bird, and in velocity swift as an eagle." And so, from all these sources, voices sound forth their invitations to the average American to leave his house, and, equipped with those assistants which enable him to weave pleasures from the passing hours, to go forth into the open field, and reap the benefits of the great out-doors, of the free and the liberal education to be acquired as contrasted with the bound and pent life of the book student."

Youth strongly craves a release from the laborious study and rigid discipline of our present system of schools; and how many weak, delicate, pale, young souls, struggling to keep up with their more robust comrades in advancement, long to drop the burden grown too heavy for their rounding shoulders and cry—

"O, would we could dive and run,
Catch the wild goat by the hair, and hurl our lances in the sun,
Whistle back the parrot's call, and leap the rainbows of the brooks,
Not with blinded eyesight poring over miserable books."

Let the children be physically as well as mentally trained;

they will need strong, healthy bodies with which to encounter life's cares and the hardships of the race of life.

Now, the amusements and recreations of the out-door world; and the sweet wisdom which comes to one who studies its changeable mysteries, are not associated with play alone, nor with the recreation that is connected with man's amusements.

Nature is full of studies. Albert Bierstadt studies her landscapes; Rosa Bonheur the common farm animals, and we all know her wonderful success in painting them. Landseer loved and studied dogs, and even now a copy of his picture "Dignity and Impudence" looks down upon me from my study wall. The large head, and keen, intelligent eyes of Dignity remind me strongly of the great Daniel Webster. Agassiz made a specialty of reptiles and fishes; Audubon studied the habits of birds, and to him we owe much of the knowledge we have of the ways of our American birds—welcome little strangers. Martius gave especial attention to plants and flowers, and devoted twenty-seven years to the study and collection of palms alone.

These, with many others, have found infatuating studies in the open book of Nature. Then again, this dame so beautiful, is always good-natured. Wherever you look in the range of her creation, you will see cheerfulness. Do not the brooks laugh merrily; do the leaves rustle sweet music; the flowers nod their pretty heads and smile in beautiful content? Nature is also mirthful. Her animal creation is full of fun.

"The horse loves to play. Turn a dozen colts into a four-acre lot, and see them go. How they will scamper and stream like an animated current across the level expanse! How their heels will fly, and their joints snap! How their young lordships will put on airs, heads up, tails lifted over their backs, eyes aflame, necks swinging proudly from side to side, and hoofs that spurn the earth, as if they were too kingly to acknowledge their need of it! Who can see a dozen lambs at play in the sunshine of early summer, and not feel the lines that toil and care have cut into his face smooth out? What an infinite amount of fun the Creator has done up within the skin of a dog! Who ever saw a dog that didn't love his joke, if he could share it with his master. A dog is the prince of good fellows, and doubly gifted for merriment, for he can laugh at both ends at once. And kittens! How they will chase each other, roll over, scamper about for hours at play. Many times have I leaned over the sides of my boat in Northern waters, where the trout lay beneath me, and seen the mottled beauties chase each other, and race and leap in rivalry of sport, until their bright sides irradiated the dark stream with glancing light, as if the rays of the sun had taken water, and were at their bath. The awkward bear will dance, or try to dance, and I think I have seen a twinkle of humor even in the eye of a pig! Time and again have I lain hidden in the leaves and the grasses, and laughed until my eyes were moist with inward fun, to see the gambols and pranks of the furred and feathered children of nature. Man makes discord, but the wide world, as God designed it, is full with the melody of a pleasant psalm."

"One of the happiest signs of the times is that which proves that the ancestral characteristics of the original American have not been effaced from our popular character. We come from a strong brawny stock; from men who tilled the fields, traversed the hills and valleys in pursuit of game; lined the banks and streams with their traps; loved the companionship of the ox and horse, and looked upon the rifle and musket in their possession as symbols of their manhood and bulwarks of their liberties. Our ancestors were not puny men; were not effeminate; were not in-door people, pale of countenance, and slender of build. They were tall, stalwart, muscular; some of them awkward, by reason of excessive development in joints and bone; but none of them were feeble, and while excessive culture might laugh at them on the sly, yet it could but admire them at the very same time, because of that which excited their mirth. You can laugh at the awkward movements of a giant, yet you can but be impressed with the majesty of his size.

"Nature demands industry, and she tempts us with opportunity of financial reward. Agriculture, or soil culture, in the widest sense of the word, includes a hundred and one pursuits, which call for the thoughtful brain, the inventive wit, and the skill of instructed fingers. There is no employment which demands closer observation, a finer sense of climatic changes, or a more infinite knowledge of the life and growth, and habits of creeping things, beyond what orcharding requires. He who can plant a tree, and supply it with nourishing and protecting guardianship through the years that intervene between its root existence and the first full harvest of its fruitage, must be king of a kingdom, of tendency, whose domains are, of cause, of effect, of influence, of the globe. He who takes as large as the fruit-bearing soil, and fences out of joint, and makes it productive, has won a victory over adverse circumstances—over impatience and despondency within himself—prouder than those triumphs which the sword and cannon gain.

"The brightest sign of the times is the fact that men and women are beginning to turn their faces toward the country, and in the good old-fashioned way, too. They are beginning to long for easier lives, for quietness, and the absence of parade. It is a hopeful sign when the wealthy merchant goes back to his ancestral home, to the little farm where he was

born, and finds enjoyment in once more holding the plow and mowing the meadow; finds delight in his sleek oxen, his fine-bred colts, and his herd of Jerseys. It is a hopeful sign when the woman of fashion leaves her Saratogas at home, and tucking a few necessary articles of comfortable clothing into her valise, starts with her husband for a two months' trip in the Adirondacks. It is a hopeful sign when our young men take to boating and ball playing, when the plant root becomes a fascination, and the long range rifle a delight. It is a hopeful sign when our young ladies are seen studying floriculture, learning to sit a saddle properly, acquiring suppleness of limb on graceful skates, and laughingly facing after breakfast, a four miles' tramp. It is a hopeful sign when men are beginning to ask themselves why the old fire-place was banished, and to demand its restoration; to ask why the windows of their dwelling are drawn by the architect so small, and why parlors are made so gloomy, more fit for the residence of a hermit than a happy-hearted man. These are the bright evidences, the rosy tints flushing with delicate warmth the sky which declare that the dawn of a new day is at hand; a day in which we shall get back to the simplicity of nature, shall put a proper value upon the charm of quietness, shall bring the light and purity of the out-door world into our houses—aye, and into our souls too."

The Graves of the Virginian Presidents.

Monroe and Tyler are buried in Hollywood cemetery in Richmond. The plainest of cenotaphs covers the grave of the former, and rust is eating off the dismal-colored paint that once protected the iron. Tyler's grave is entirely unmarked, and rank weeds and tall grass luxuriate around it and obscure it from sight. The Legislature begged his family to allow his remains to be interred here, and promised to erect over them a suitable monument, but the treasury has been so empty and legislators so engaged with other matter that no steps have yet been taken in that direction. Thanks to the ladies of the Mount Vernon Association, the tomb of Washington, at Mount Vernon, in Westmoreland county, is well cared for, and is still visited by people from all parts of the world who revere the memory of "The Father of his Country." Jefferson is buried on his old estate, Monticello, near Charlottesville. The simple shaft that covers the grave has been pecked and chopped by relic-hunters, and grass and weeds are allowed to grow about it undisturbed. Madison sleeps in Montpelier, in Madison county, and nothing but a simple monument of cheap kind and poor design points the curious traveler to his resting-place. The Virginians, while holding in dear remembrance the distinguished services and virtues of these great men, have been unaccountably negligent and indifferent in the way of building monuments over their graves. That duty, if ever done, will probably have to be performed by the nation. Virginia is now too poor to spare money from her treasury for any other purpose than to carry on the necessary expenses of government and pay the interest on her huge public debt contracted in building railroads before the war.

Pyramids and Ironclads.

Contrast, for example, two works—the Great Pyramid of Egypt and an ironclad ship-of-war—each the product of enormous energy or force. In bulk, the ancient structure is imposing, stupendous. So measured and estimated our ironclad is an insignificant pigmy; but given the two problems, to build a pyramid or to produce an ironclad and its contents, modern engineers can laugh at a pyramid—the ancients would stare hopelessly at a *Devastation*. Our advantage consists in great part of our command of mechanical heat. The dispersed energy, force, or heat of many thousands of human bodies was consumed for ten long years in making a solid roadway to carry the blocks of stone from the Arabian quarry; and then twenty years more were spent by 100,000 men in bringing those blocks and raising the stately pile. I repeat, the ancients did it by enormous expenditure of human labor; in other words, by the energy of the heat dispersed through multitudes of human bodies, and spread over a number of years. Moderns would do it by the products of the concentrated heat of our furnaces, and the heat-produced steam of our engines. And those thirty years of weary toiling would probably be exactly represented by an equal number of months. I believe there is vastly more labor in the production of a fully equipped ironclad than in the building of a pyramid; but the ancient force was spread out and displayed, ours is concentrated and hidden.



THE WINTER WOOD-FLOWER

A SONNET.

Through the bared forest, by its dreary ways,
So hard and rugged in the grasp of frost,
I wandered where a million leaves were tossed,
The fading trophies of dead summer days;
There, in the coldest, gloomiest nook, ablaze
With gorgeous colour, like a fairy lost
In some lone wild by fairy feet uncrossed,
Bloomed a strange flower amid the woodland maze,
All round the dimness of that desolate place
It shed both light and perfume, its fair head,
Swayed by the gale, still bent in curves of grace.
Bloom on, O flower! the blessed type thou art
Of one last hope, which o'er its brethren dead
Shines on the frost-bound stillness of my heart!

Vegetable Alkalies—Strychnine.

BY JAS. P. DUFFY.

In preceding articles in these columns, vegetable acids have been described, without any reference to the basis of the same. The latter, commonly known as alkalies, form the subject of the present article.

The principal point of difference between alkalies and the chemical products hitherto described, lies in the fact that they all contain nitrogen as an element of their composition, and unite with acids to form readily crystallizable salts. They are, for the most part, principles existing in small quantities in the plants from which they are procured, and of which they constitute the acting part, either medicinal or poisonous, as the case may be. Water dissolves them but slightly, alcohol being their proper solution. Some of them are of great utility in exerting a healthful influence on the human system; others, on the contrary are intensely poisonous.

The principal alkalies are Strychnine, Quinine, Cinchone, Morphine, Nicotine, Narcotine, Theine, and Codeine.

The first named, Strychnine, is highly poisonous; it is obtained from the nuxvomica and St. Ignatius bean, and in most cases is associated with an almost equally poisonous substance, (brucine) which it so closely resembles that in unskillful hands, one is often mistaken for the other. When pure, it has a crystallized appearance, a bitter taste, and does not readily dissolve in water. Boiling alcohol is generally used to dissolve it, although when it is desirable to separate the brucine from it cold alcohol is used.

The terrible use made of strychnine in cases of poisoning and suicide is familiar to all. Even in quantities of

a grain it is the most poisonous chemical that can be taken. Its use seems the more fearful when it is stated that no certain remedy has, as yet, been found for it. The symptoms of its victim are rigid contortions of the muscles; though racked with pain, the mental powers are undiminished, until convulsions, terrible to witness, end the victim's misery.

The following is the principal test for an article supposed to be strychnine:

A grain of the suspected article is placed on a plate with a little powdered bi-chromate of potass near it, and a small drop of concentrated oil of vitrol let fall between them. On stirring the three, a rich purple color which speedily turns to a red tint, will be produced if the first article employed be strychnine. If it is not strychnine the described change of color will not take place.

A Losing Game.

Gideon Lee was a man well-known in business circles years ago, and no one who knew him but remembered his staunch integrity and his detestation of all under-hand dealing and trickery.

"Every trade should be a benefit to both parties," was his motto, and a person who cheated he always regarded as the greatest loser in the long run. And so he was, if character and honor are to count for anything. Mr. Lee felt that even in money matters the dishonest man was a loser. A snake in his store would be about as welcome as a man of an over-reaching turn.

Such a man came in one day, and was bragging of his smartness in this line. He told how on such a day he had got the better of that neighbor, who must have had his eyes about half-opened to let himself be so taken in. And then he laughed a jeering laugh, which had no contagion in it. It was no honest, hearty laugh. The man went on to tell still other smart tricks he had played off on people, winding up by saying, "And here, to-day, I have even got the advantage of Mr. Lee himself."

"Well, that may be," said Mr. Lee, "but if you will promise never to enter my office again, I will give you that load of goat skins." The man made the promise, and took the goat skins.

Fifteen years after, a poor, dejected looking man walked into Mr. Lee's office. He was recognized in an instant, and Mr. Lee quickly remarked: "You have broken your promise—pay me for my goat skins."

The man was rather taken aback by the greeting, but at once began a mournful tale of his misfortunes and his poverty.

"Yes," said Mr. Lee, "and you always will be poor. That miserable desire of over-reaching others will always keep you so."

K. C. G.

Billiard Balls.

It is singular how important to the world are many of the little things we pass by unnoticed. A young English manufacturer was once asked by a German firm to take charge of the glass eyes manufactured exclusively by them for dolls. He was about to decline the commission as likely to give him more trouble than it was worth, when he was shown by the foreign firm that the trade in glass eyes amounted to some twenty thousand dollars annually. The man who invents a new toy that becomes popular, makes a rapid fortune, though the mechanism may be of the slightest and cheapest; the man who writes a taking song, however foolish it may be, is certain also of his five or ten thousand dollars. From children to men we must be amused, and we are willing to pay the price. Look at the little ivory billiard balls; they are very simple, perfectly round—but there's the defect. Any one who remedies it can sit down at his ease and have money poured into his pocket. Balls made of ivory, even when they are quite new, are not of the same density throughout, and consequently do not run perfectly true. Making them of glass and steel has been tried, but without success. The nearest approach to the "genuine elephant" thus far is the composition balls, made of compressed paper for a core, with an outer coating of collodion and other materials. Ivory shrinks exactly the same as wood—with the grain; and the knowledge of this fact led to the abolishing of all ivory scales formerly used in the British Survey offices. Various means have been proposed to season the ivory in addition to that in general use—keeping in perforated boxes, or netting—but the result is only "skin deep" seasoning. Another plan is now on trial, with indications of ultimate success; but the process is a trade secret.

How it Feels to be Dying.

I was crossing a bridge over a wide but shallow stream, in a lonely place, and accidentally fell off. When I say shallow, I mean for such a wide body of water. It was over my head by two or three feet. I saw nobody near me and could not swim a stroke. I knew how deep the water was, and gave myself up for lost. The quickness of the senses when sudden death seems impending has frequently been noted, but still, without experience, no one can realize it. It is as if one's whole life were spread out in a panorama before him, every portion of which was visible at once. Every minute details of things long forgotten, and which when they happened were so trifling that they apparently made no impression on the memory, stand out in sharp and bold outline. I remembered for instance, games of marbles played when I was a boy, and a futile attempt I once made to transmute a "commonney" into a "white alley" by greasing it with lard, wrapping it in a rag, and roasting it in the fire. I remembered how the marble burst in the operation, and how a piece of it struck and cut the cheek of the boy who had beguiled me into the experiment, and the satisfaction I experienced at the retributive justice. It seemed as if everything I had ever done, suffered, or thought, was presented to my memory at a single flash.

Then I struck the water, when a sound, which I have since learned to liken to the roar of Niagara, burst on my ears and stunned me with its overwhelming volume. I remembered a brief instant of struggling and clutching, and then a sense of sinking—sinking—sinking—until I had reached a depth of thousands of fathoms. I neither suffered pain nor felt alarmed, but had a vague feeling of being irresistibly borne to some catastrophe, the climax to which would be terrible. Suddenly I found myself possessed of the power of floating or wafting myself along by mere volition. With a delicious feeling of languid indolence, I suffered myself to float about—not in the water, but in the air—skimming over the surface of the ground in whatever direction I chose, hither and thither, as a wayward fancy led. I was conscious that it was a new power, and I exulted in its possession and reasoned on its nature. I found that my body was as light as the air in which it moved, and imagined that a thistle down would feel as I did, if possessed of consciousness. Then I was in the water again, and everything around me had a roseate hue, which speedily changed to green, then to violet, and finally to utter darkness, and then all was blank.

As I subsequently learned, some men in a skiff a half mile away had seen me fall into the water and hurried to my assistance, but I had disappeared long before they reached the spot. Many minutes elapsed before they found me; and full half an hour afterwards before the physicians, who had been summoned, arrived. They pronounced me dead, and that they made an attempt to resuscitate me was due solely to the persistence of an intimate friend of mine who had accompanied them.

Nearly a dozen years after the above experience I became a citizen of the West, and commenced opening a new farm in a sparsely settled country. The place was about ten miles from the nearest town, and one pleasant day near the last of December, I went to the latter in a light spring wagon to get some supplies for Christmas festivities. The day was so mild that I did not even wear an overcoat. About the time I started home, which was a little after sundown, it began to grow suddenly cold, and presently a storm almost amounting to a hurricane broke from the North, bringing with it the temperature of Nova Zembla. In this region of marked climatic vicissitudes I never before or since knew any so great. The mercury fell in an hour to forty degrees below zero. Under ordinary circumstances I could easily have made the ride home in that time, but I was going in the teeth of the wind; so that I could make but little over half the usual speed. I suffered severely from the cold but not more than I had many a time before and have many a time since, but as you may imagine was anxious to get home as quickly as possible. When I had got within a couple of miles of there, I found the weather growing pleasant again. My ears, that had stung and smarted with the cold, no longer troubled me. My hands, though still numb, had a firm grip of the lines, and seated in the bottom of the wagon, with my back and shoulders resting on the seat, I would have been

quite comfortable, except that I was so drowsy that I could scarcely keep awake. I comforted myself with the reflection that I would soon be at home snugly tucked in bed, where I could sleep to my heart's content. While indulging in this pleasing reverie I dropped asleep, and what followed I only learned from my family.

They had concluded that finding the sudden change in temperature, I had either determined to spend the night in town, or had returned there for that purpose in case I had started home before the cold began. At eight o'clock, having given me up, they retired to bed and to sleep. About nine o'clock, my wife was awakened by the repeated whinnying of a horse in front of the house. She never suspected that it was ours, but took it for a stray, and from motives of humanity called up one of the men and ordered it to be put in the stable. When the man went out and found it was our own horse, and that I was in the wagon apparently dead and frozen stiff, he made an outcry that soon brought out the household. Fortunately my wife had recently been reading of the proper mode of treating persons partially frozen, and therefore knew that I must not be taken into a warm room, but must be rubbed with snow. Plenty of snow had fallen, and I was stripped and well rubbed with it until I began to show signs of animation. Then frictions with coarse cloths were used until I was sufficiently restored to scream with the torture they were putting me to. Every portion of my body seemed as sensitive as a boil. I felt as if I had been stung all over with wasps or hornets until I was a swollen pulp, ready to burst at any point like an over ripe cherry. The joints of my fingers, toes, ankles, and wrists seemed as if screwed in red hot vises till the blood was ready to ooze out from the extremities, and I could scarcely persuade myself that my finger and toe nails were not being forced off by the pressure. I soon became delirious, and a raging fever set in, from which I did not recover for weeks. But when I did recover, my physical condition was better than ever before. I had been slim and almost puny before, but now I became hearty and robust, so that at sixty I am strong and active as most men are at forty. I attribute it to my having been frozen to the verge of death.

"Resins."

BY JAS. P. DUFFY.

Resins are obtained by making cuts in the wood of the trees producing them, and collecting the juice which exudes. The principal trees from which they are obtained, are the pine, fir, and larch. From these the resins are generally obtained, diluted with the essential oil of tree. They are all insoluble in water, but may be dissolved in either oil of turpentine, spirits of wine, or naphtha.

The principal and most valuable of them are *shellac*, *gum-copal*, *mastic*, *sandarach*, *amber*, *india-rubber*, and *gutta-percha*. The latter three are known as gum resins, from the fact, that being obtained in a milky state, they afterwards, on being exposed to the air, acquire solidity, thus forming a kind of gum.

In many cases, the formation of resins seems to be due to the oil of trees becoming oxidized, thus forming new substances. The greater part of resins consist mainly of several acids, the principal of which is resinic acid. From the presence of the latter in resins, the chemist is able to produce, by the action of bases on the resins, new and valuable substances known as resinates.

As an illustration of this fact, sodium resinate may be taken; it is formed by the action of the base, caustic soda, on common resin, and as it possesses valuable detergent properties, and is soluble in water, it is largely used in making some kinds of soap.

The three resins known as gum resins are entitled to a fuller description, inasmuch as, while they possess the general properties of resins, they also possess others which are the cause of their more frequent use.

Although chemically, amber is a resin, as it consists of several resinous bodies, yet strictly speaking, it is a fossil body, possessing the very useful attribute of becoming highly electric on friction. It has been frequently obtained from beds of lignite, but the principal sources from which the trade is generally supplied, are the shores of the Baltic Sea.

In its natural state, it is soluble in alcohol to the extent of an eighth part, but when melted, it dissolves readily, and is sometimes used for making varnish.

Anger.

BY PROF. WOODWARD.

One of the most important of our duties in life is the due regulation of the passions. We naturally possess certain mental affections called *propensities*, which, when properly restrained, serve a good purpose, both individually and socially; but when let loose, or badly regulated by the understanding, lead to the commission of many vicious and abominable actions, which in moments of calm reflection, and when our conscience is aroused, we deeply lament and regret. Irritability of temper, as demonstrated in the passion of anger, is one of the most unhappy of these derangements of our intellect.

The causes of anger are supposed to be these: First, by the law of nature and of society, every one has rights in what he regards as his own property; second, one has a right to hold unimpaired whatsoever he can justly acquire in reputation and character; third, he has a right to have his feelings respected by others, if he do no wrong to their feelings; fourth, he has a right to have the like rights respected in those with whom he is necessarily connected by family and social ties; fifth, he has a right to be treated with justice, and according to established laws, by those who are intrusted with power; sixth, he has a right to have those who are bound with him, in a common subjection to those laws, treated with justice. Whenever any one is offended by the violation of any of these rights, he may be justifiably angry. But in what manner and to what end, he shall express his anger, so as to do himself the greatest justifiable good, is the thing to be known.

Every one who has had a violent fit of anger upon him, knows that it was to himself (independently of the cause and object of his anger) a painful and even distressing sensation. No one ever looked back upon such a state of things, as to himself, with satisfaction, but generally with regret, and sometimes with remorse. He feels humbled and grieved in his own estimation of himself. He may too well remember that he used expressions and did acts which he is grieved to have resting in the memory of others, or his own. It is probable, also, that no one ever saw another in a violent passion without feeling that his anger was degrading himself, and his actions more like a brute than a rational being. Whatever may be the cause of such anger in another, cool speculators always regard the angry person as under a temporary loss of reason, and in danger of doing some serious mischief, and are prompted to restrain him. Every one feels, in such a case, that the least that can happen to one so acted upon and so acting is, that he is preparing for himself hours of reproach. If no one likes to remember that he was violently angry himself, and if he is offended in seeing others so, it must be admitted that violent anger is contrary to natural law, as it most certainly is to Divine law. It is an abuse of the trust confided to us to promote our own welfare.

It is consistent with reason for any one, who is under the influence of anger, to be prepared to ask and answer the question, whether the wrong is real or only supposed, and whether he is himself free from the first imputation of having occasioned, by his own error, that which he regards as a wrong. If the offence is real, other questions arise, of this nature: What real good shall I secure to myself by attempting to get a reparation? And in what respect shall I advance my own welfare by attempting to punish the offender? May I not, in either of these attempts, involve myself by words or acts in some wrong, and give my adversary the advantage of finding me an offender, in trying to vindicate myself? If I could succeed in my attempt, what will it come to? Shall I not make the wrong done to me more notorious, and subject myself to the pity and compassion of others? Is it not better to be silent and quiet, and leave the offender to time and his own conscience, than to engage myself in a controversy which is sure to be vexatious, and in which I shall run the risk of doing wrong, and in which I shall not be likely to get any good? If I succeed in humbling my adversary, I shall surely make him my enemy for life; for, in the nature of man, he is slow to forgive the wounds inflicted on his own self-love. When this matter is over, and time has dissipated the mists which now prevent a clear view of it, and when other feelings and sentiments have arisen, shall I like myself the better for having been silent and quiet, than if I should have attempted to command

justice, and to inflict punishment? It is probable that young and ardent minds, and those who are looking back by the light of experience, will answer such questions very differently. But the experienced can tell the young, with sorrowful truth, that among the most painful sufferings of life are to be numbered those which have arisen from sudden impulses of anger, expressed in words or acts. The experienced can also tell, with like truth, that in the common occurrences of life, angry words and acts have seldom, if ever, accomplished the purpose for which they were intended; they have neither obtained justice nor punished the offender; but, on the contrary, they have often converted the injured party into an offender himself, and involved him in bitter recriminations, keeping up an irreconcilable aversion, and even enmity through life. We have, so far, supposed that a real and justifiable cause of anger existed. But it is in many cases imaginary, especially among young persons. They take up sudden impressions concerning the supposed conduct and words of their associates and acquaintances, when no such conduct or words have occurred; or if they did, none with intention to wound or offend. If there be one case in which one feels himself peculiarly humbled, it is when he has manifested anger towards one who has committed no offence, or who is entirely unconscious of having done so.

It sometimes happens that an offended person can restrain himself from expressions and words when he has been seriously offended. But he cherishes a malicious sort of feeling against the offender, broods over the wrong done, and permits his imagination to inflame the sense of wrong, until he makes himself too unhappy, under this excitement, not to express it in some mode which will occasion pain to the offender. If there be any one who has fallen into such a condition, he may be asked whether he knows of anything in the nature of regret or remorse for his own follies and sins, which is so exceedingly burdensome as to carry about with him the feeling of aversion, ill-will and malice, toward one who has offended? What, then, is to be done? Angry words and acts are forbidden by the law of nature, by self-respect, and by convenience; the memory of an unavenged wrong is intolerable. Is there no remedy? We think there is one in every person's power. If the individual with whom one is at variance can, by calm exposition, or by mutual friends, be brought to a just perception of the case, that is the remedy. If that fails, there is another—it is of high authority—"If thine eye offend thee, pluck it out." Blot such a person from the memory; never permit him to come into your thoughts. Will you pass your life in humiliating bondage to such an one? We say, blot such an one out of your memory. You do him no wrong by that. You do yourself a just and great good; you cut a moral cancer out of your heart.

Among the sources of affliction in human life, is the uncalled-for interference of third persons in the angry collisions of others. It may sometimes be an unavoidable duty to take a part in an angry quarrel. When this duty is to be performed, it concerns every one who is mindful of the trust confided to him of taking care of himself, not to engage in the controversy in such a manner as to become a principal party in it. As a general rule, it is the safe course to let angry persons settle their own concerns as they can. Certainly, no one who claims to be regarded as having a discreet sense of his own welfare, plunges himself into a quarrel. Yet this is a very common thing. It is often seen in schools. Parties and divisions grow up, extend, and become more and more bitter from the most trifling causes, and are often carried out into manhood, and show their evil consequences through life. This is so, because impressions made in that season are very vivid and enduring. It is a duty sometimes to take a part in controversies. It must be remembered when one engages in such quarrel, that one is dealing with persons under a sort of derangement, and who are most exceeding sensitive, and perhaps naturally vindictive. Those who interpose are bound by the law of self-regard to interfere with calmness and some discretion, and so to conduct themselves, in word and deed, as to do no evil to themselves while they attempt to do all the good possible to the angry parties. On the whole, mismanaged anger is a prolific source of suffering. Yet when calmly looked back upon, in a great majority of cases, the cause was some insignificant trifle, magnified into serious importance by angry words and pitiful acts. Such is the propensity of

persons to busy themselves in the quarrels of others, that there is but little hope that a preventive can be successfully offered to any one but those who have studied out and who reverence the will of the Deity, as disclosed in the nature of things, and in His own positive law.

Drowning Death—An Ancient Slavonic-Germanic Custom.

This strange and curious custom still prevails in those parts of Moravia and Silesia, where the German and Slavonic elements blend and intermingle. This carrying out and drowning of Death takes place in Spring and during Lent, not long before Easter Sunday. There is a difference between the two races in their mode of celebrating the day. Among the Germans, boys carry around a stuffed figure of a man, while among the Slavonians the girls and young maidens gather together and prepare and carry off in procession a huge doll, arrayed in the garments of their sex, with great solemnity.

The origin of this difference lies, perhaps, in the fact that in German Death is masculine, while in the Slavonic language and mythology Death appears constantly as a female.

The deity called Morana was in part opposed and in part supplementary to another deity called Morena. The latter represented the idea of darkness, extinction, passing away—everything hateful.

Morena was the personification of the creative, vivifying, preserving, and nourishing power of Nature. All these powers combined, give a profound symbolic sense that Mother Earth is producing, creating, nourishing, and preserving, but is also destructive, and absorbs into itself its products, an idea which amounts to that of a continued revolving course of things. Therefore the Fall and Winter season, fog, darkness, and weakness of sun-rays, were considered as attributes of the first named goddess, while merry Spring and beautiful Summer were supposed to belong to the latter, Morena.

On the third Sunday before Easter, called Laetare, Death is carried around in some villages as a male, and in others as a female figure.

The wintry pall of the earth is now removed; the new Life standing forth commands the removal of Death to some parts of the field far removed from all habitations of men, to some rivulet, pond or brook, and thrown headlong into it. Death is drowned in it, symbolically, for water is the element which it has held during Winter in its icy grasp.

To punish Death with combustion would be out of place and nonsensical; but the liberated river, the brook freed from its icy cover, or formed by the melting of the snow, ice, and icicles, this is the true element to let the malefactor perish in!

The procession moves along in festive, well-dressed groups of young people. They carry, also, the top-most branches of a tree, generally of a pine or spruce, festooned with ribbons or flags, and ornamented with colored egg shells. This means Life—vigor of nature—in contradiction to the powers of Death. Everything could be stifled by Death except this lively and fresh green, except these seeds and sprouts of a renewed life, and these new forces will at once expand and thrive with vigor.

Both Germans and Slavonians sing scoffing songs in the procession. When near the water they tear the doll into a thousand pieces. Everybody tries to catch a bit of cloth, straw of the stuffing, etc., and to carry it home in triumph. These curious bits will serve as preservatives against sickness or destruction. Finally the remains of the doll are thrown into the stream, where they are washed away by the current. Then the youths return rejoicingly to the village; the green tree-top is carried at the head of the procession, and surrounded by the singing and shouting crowd. In this way they go from door to door, asking donations for Easter Sunday, and contributions begin to flow in abundantly. Eggs, cakes, or other eatables accumulate fast in the hands of the eager youths.

Such is the curious custom of drowning Death. Not without its symbolical meaning, but like our May sports, a Spring holiday for the young.

Moldiness resembles a forest of perfect trees.

Reason Overcomes Instinct.

Near Cold Spring, San Jacinto Co., Texas, resides an unobtrusive Baptist preacher, who was lately informed by one of his neighbors where one of his cows had a young calf which was doing badly—could not stand up. Mounted on his mustang, the pious man soon reached the designated spot, only to find the calf dead. She being one of his favorite cows for milk, for a long time he tried to drive her home but failed. Dismounting, he skinned the calf and stuffed the skin, then with his lasso dragged the skin home, the cow following him the whole four miles in a trot. Having in his pen a similar though larger calf, he caught it and rubbed the hairy side of the skin over its entire body well, then turned the cow to it, and after smelling her well she suffered her to suck her. Now the parson's many children enjoy the milk of two cows that own a calf between them. Taking calves entirely from their mothers is not usual in Texas.

Heine's Last Hours.

Who that reads these lines will not long to know more of Heine, "brilliant, funny, pathetic, full of divine grimace, full of tragic persiflage?" The story of his lingering decay is too sad for tears. Think of him bearing the intolerable anguish of his softening spine, propped up on pillows, with one eye entirely gone, and the lid of the other paralyzed, yet jingling forever his bell of wit, wherewith to invite the world to the piteous spectacle of his death in life. Lying on his couch of torture, he entertained George Sand and Gautier, Beranger and Gerard de Nerval, Taillandier, and the rest of his bright guests, as bright, himself, as the best of them. "I kiss," he said, pathetically, "but have no sense of feeling, so senseless have my lips become." Heine had a deeply loving nature, and his mother and his wife were his two idols. His wife, the poor little French and faithful Mathilde, whom he had married late in life, did not understand his greatness or his celebrity as a poet, but she adored him, and it was his pride to boast of her disinterestedness, her cheerfulness, her devotion, and her ignorance. He says of her in his will: "I spoiled her unspeakably, because I loved her unspeakably." He wrote once to Campe: "Only two consolations remain to me, my French wife and my German muse." He grew, later, to find consolation in his passionate belief in immortality. He had been a Hegelian, then a Pantheist, but, at last, "a heavenly homesickness" overtook him, and he returned to his faith in a personal God. He said that all his knowledge, all his intellect, told him that a belief in immortality was madness, yet with his feelings he clung to it, and in this hope the spent candle of his life went out.

A Cunning Old Fox.

There was one old fox which for a period of several years had continually evaded the fleetest and keenest scented hounds, the scent invariably being lost in the vicinity of a house situated in the woods and far removed from any habitation, and which was used as a storehouse for pelts. At last one day the hounds started the old fox, and away he went in the direction of the house, with a pack of young hounds in full cry after him; but on nearing the house he disappeared, leaving the hounds and hunters nonplussed as usual. While the hunters were gathered in and around the house discussing the frequent mysterious disappearance of the fox, an old veteran hound came limping up, and entering the door, set up a furious barking, and tried to jump up on the wall. His singular action attracted the attention of the hunters, and, an examination being made, the old fox was found suspended by his tail to a nail in the wall, keeping perfectly still, and looking, unless closely observed, like the pelts with which the walls were hung. This plainly showed that the old fox, when too closely pressed, had taken refuge in the house and hung himself up on the nail by his tail, which was the reason for the dogs always losing the scent at that particular place.

The love of flowers is natural to all. The Almighty in His infinite wisdom has ordained man for the cultivation of the earth; and thus it is that we are, in a manner, like our first parent Adam, made gardeners, and our inclinations lead us to the culture of flowers.



BY THE BROOK.

I wander where the little brook
Runs murmur'g o'er the ledges;
I pass by many a shady nook,
Low-fringed with reeds and sedges;
I linger where the wavelets leap,
And gleam with golden flushes,
And where the water-lilies peep,
Half-hid amid the rushes.

On either bank the lowing herds
Are scattered through the meadows,
And, skimming o'er the stream, the birds
Dart in and out the shadows;
While on the breeze is borne along
The sweet soft scent of clover,
And, loaded to the full, with song
The air seems rippling over.

And where from out the little stream
A ripple dances slyly,
And runs away with silvery gleam,
A maiden's standing shyly.
Feeding the swans that at her feet
With much of proud grace linger,
And watch the round arm fair and sweet
And rosy outstretched finger.

Glad scenes like this lie everywhere,
The whole world's face they brighten;
With sunny smiles they banish care,
And many a sad heart lighten;
They many a hard stern nature bend,
And, when o'er-pressed by sorrows,
Are as the touch of loving friend,
To point to bright to-morrows.

G. W.

Donald McKay.

BY M. J. CUMMINGS.

We love to turn—it is a pleasant and profitable employment—from one great man to another, and note the different enterprises in which they engaged, and the varied success that awaited them: We now notice the great ship-builder, Donald McKay, of Boston.

The name of McKay is of Scottish origin, and figured among the Highland clans of Scotland for at least eight centuries.

The grandfather of the Donald McKay of this sketch was in a Scotch regiment at the battle of Bunker Hill. The Donald of whom we write was born at Shelburne, Nova Scotia, in 1809. The sea, near which his life began, had a great charm for him, and the ships traversing the unstable way of waters enchained his liveliest interest.

He also lived on a farm, and when quite young was a successful moose and deer hunter.

When Donald was nineteen years of age, he set to work with a brother of similar tastes and built a fishing vessel, which was regarded as a remarkably fine, substantial craft. At the age of twenty-two he was learning the trade of ship-builder in New York, and a few years later he established himself in this business at Newburyport, on the Merrimack river. Here he built several fine ships for New York and Boston houses, which gave abundant promise of future success. In 1845 he removed his yard to East Boston, which, ere long, became one of the most extensive and successful places of the kind in the country.

When the California trade opened, there was a call for the largest class of clipper ships. McKay built one after another of these monster vessels, and soon his name became famous over the world. He built more than fifty ships of the largest size, every one of which was celebrated more or less for speed.

Classed with these is "The Great Republic." This vessel was launched October, 1853, in the presence of sixty thousand people. She was four thousand five hundred tons register, and six thousand tons stowage capacity. When McKay was building this vessel, the "harpies" and the "ravens" croaked that he would ruin himself; but he quietly pursued his way and his business, and in due course of time the "Great Republic" rode at anchor in the bay. In New York and Boston, and also in every foreign port which she visited, she attracted great attention for the symmetry and beauty of her model, the vastness of her capacity, and the luxuriousness of her furnishing, and she proved also to be a speedy craft. Subsequently, she was cut down a little to render her more efficient for the purposes of commerce.

The rapidity with which this master builder completed and launched his large vessels was astonishing. In little more than a year after the building of the "Great Republic," McKay had launched eleven other vessels. Ten of these were the aggregate of twenty-four thousand six hundred tons, which, at the then estimated cost of eighty dollars a ton, makes the total value nearly two millions of dollars.

Six of these vessels were built for the house of James Baines & Co., of Liverpool, who were extensively engaged in the Australian trade. One of these, of something more than two thousand tons burden, launched in 1854, was the first ship ever built for England by a foreign nation. Indeed, until a few years previous to this time, British laws prohibited the purchase of foreign vessels.

The "James Baines," another of the ships, made the voyage from Boston to Liverpool in the remarkably short time of twelve days and six hours.

Voyages to San Francisco and China were made in proportionally short periods of time.

In building his clipper ships, Mr. McKay had made bold departures from both American and foreign models. His original conceptions concerning the make and mould of vessels constructed for speed and capacity, met with rich success.

The revolution made by steamers in short voyages was effected by clippers in the long journeys to more distant seas. The advantages to commerce and the renown which has resulted to the American marine are more due to the genius and perseverance of Donald McKay than to any other man.

In 1864 McKay spent some time in Europe, giving critical attention to the iron-clad ships of war built by France and England. Afterwards he published a very interesting paper in which he gave a scientific comparison of their work with that of the United States.

McKay possessed those wonderful powers of calculation that brought his plans and his work upon an exact line, and for this reason his success was secured before hand.

Of medium height, of heavy build, his large, fine head and broad, full face, bespeak a remarkable force of character.

Of courteous manners, marked intelligence and persevering, soaring enterprise, his popularity was equally only by his success.

How wonderful is the Divine Economy, that moulds for every enterprise and avocation, the gifted, master-mind for leader, while the inferior masses choose only to be led.



THE BUTCHER-BIRD AND ITS PREY.

THE GREAT AMERICAN SHRIKE; Or BUTCHER BIRD.

One day a laborer who was clipping a hedge, came to his master and said a strange bird was sitting in it. His master went out to look, and examined every place, but could find no trace of a bird. A few days after, as he was walking by the hedge, he saw some black birds in a state of the utmost alarm, and uttering cries of terror. He thought a cat or a weasel must be about, but in a few minutes the strange bird his laborer had told him about flew out of the hedge and began to wheel round in the air. Sometimes it shot upwards with a kind of bound, and then hovered, suspended in the air, and moving its wings as quickly as possible.

At last it lighted on the top of a willow tree, and then he saw it was a great grey shrike.

A number of little birds were fluttering about in the utmost terror, and shrieking their notes of alarm. The shrike's attention was fixed upon them, and he seemed choosing which he should attack.

Indeed, so eagerly was he watching his prey, that he did not see that a gun was pointed at him. It was fired, and the little birds were saved from their enemy, for he fell to the ground dead.

There are more than thirty species of this bird described, in America, Europe, Asia and Africa (he is not found in South America or in Australia), of which the great American shrike (*L. septentrionalis* Gmel.), or Butcher bird, is a celebrated one.

The length of this bird is ten and a quarter inches, the extent of wings fourteen.

The most remarkable part of the great shrike is the bill; it is black and about an inch long; it is moved by very thick and strong muscles, and is an instrument peculiarly necessary to a species whose mode of killing, and also of devouring its prey is so extraordinary. It preys chiefly on beetles, dragonflies, and other large insects.

In addition, however, to insects, the great shrike preys on small birds, field mice, frogs, and even does not hesitate, when hungry, to attack larger prey. The hare frequently falls victim to his rapacity, (see cut), and also the squirrel, weasel and lizard. There are few instances in nature of such deliberate cruelty as is shown by the shrikes or butcher birds. Animals and birds of prey kill other creatures for food, and when sated, seem to lose their fierceness, letting their usual victims pass unharmed. But the butcher bird seems to delight in blood.

"With cruel eye premeditates the war,
And marks his destined victim from afar."

It attacks its prey with great ferocity; destroying insects by blows on the head, and birds and animals by piercing the brain, or by crushing in the skull with its strong bill, grasping them at the same time with its toes, which, though slender, are armed with sharp claws, and capable of being strongly compressed.

This bird has the singular propensity of *impaling insects or small birds on points of twigs or thorns*, probably for convenience in devouring them, though in many instances this habit seems to be wanton cruelty, as the bird leaves them to decay.

The Rev. Mr. Peabody remarks: "This practice of gathering what he does not want and keeping it until it is of no use to him, is regarded as an unaccountable mystery in a bird, while in man the same proceeding is considered natural and wise." Some naturalists suppose they are placed there as a lecy for other birds. Wilson, however, calls this a very pretty fanciful theory, and maintains that the shrike can seize small birds by mere force of flight. "I have seen him," he says, "in an open field, dart after one of our small sparrows with the rapidity of an arrow, and kill it almost instantly."

This shrike is so bold that it often enters apartments where pet birds are kept, and attempts to seize them from the cages; several have been caught in this manner.

In Spring and Summer it imitates the notes of other birds in distress, and when they flock around to see what is the matter, it pounces into the midst, and rarely fails to secure one. Excepting this its natural note is the same throughout the seasons, but none of its notes approach to anything like a song.

When the shrike is alarmed he screams loudly, like the hawk. In fact, many of his habits remind us of the latter, and his beak has something about it that is very hawk-like. It is strong and has a hooked point to it, and he uses it to tear and devour.

Indeed, in the old days of falconry, the shrike was looked upon as a mongrel kind of hawk, and to quote from an old book, "thought of no great regard."

In the same old book it is said that "the peasants and lower classes of England sometimes tame the shrike and carry him hooded on their wrists, and letting him fly at small birds."

On the continent, however, the shrike was used in catching the peregrine falcon or hawk himself. A snare was set for him and baited with a pigeon. Then at a little distance a tame shrike was placed, fastened to a string. The shrike was to act as sentinel, and to give warning when the falcon came near. Meanwhile, the falconer took his ease in a hut close by and waited the result. Presently a speck appeared in the sky, and the shrike would set up a loud scream and run under a little shelter provided for him. The scream would be a note of warning to the falconer, and he would be on the alert and ready to pull the string of the snare.

But, in spite of all this, the shrike has a link with the perching birds, and is placed with the nightingale and thrush. His claws are fine and sharp, and his foot is that of a perching bird. Indeed, he seems to be a link between the hawks, the crows and the thrushes, and to partake a little of the character of each.

He delights in hedgerows or clumps of trees, or thickets that are not very dense. His habit (when not in pursuit of prey on the wing) is to sit perched on a twig, or on a decaying branch, and he will remain so long that the name "excultor," or sentinel has been given to him on this account, as well as on account of the help he used to render the falconer. When a small bird or insect comes near, he will pounce upon it, and then hang it upon a thorn or twig. The shrike builds a large and compact nest in the upright fork of a small tree, composed outwardly of dry grass and moss, and warmly lined with feathers. When the eggs, five or six in number generally, are laid, the male bird is usually engaged in procuring food while the mother bird attends to her domestic affairs. He impales beetles, grasshoppers, other insects, and small birds on the thorns near the nest, probably to save the mother bird the trouble of going to look for her own meals. These are stuck about the bush in such numbers, and in so open a fashion, that they form a ready guide to the position of the shrike's nest. Moreover, the parent birds are so solicitous about their home, that as soon as they see a human being approaching their nest, they set up such a shrieking and fluttering that they intimate the position of their nest to the least experienced observer.

In his native wilds in Africa, quite an array of little birds, animals and insects have been found hanging up near the shrike's nest on a row of thorns.

The form of this bird is very elegant, and his plumage soft and blended. He has long bristles at the base of the bill; wings of ordinary length, fourth quill the largest; tail long, straight and graduated, of twelve rounded feathers; loreal space, behind the eye, wings and tail, brownish black; upper parts a clear pearly grey, tinged with pale blue; a white streak over eye; lower parts greyish white, tinged with brown on the fore part of the breast, and with faint undulating dusky bars; base of the primaries, white; the secondaries and their coverts tipped with the same.

In the female the head and hind neck are tinged with brown, and the lower part has more numerous bars.

The great shrike is common in the Middle and Northern States for the greater part of the year, retiring northward to breed.

According to Audubon, it is not found along the coast of the Southern States; the *L. ludoviciana*, Linn., taking its place. This is called the Loggerhead Shrike, and is confined chiefly to Florida, Georgia and the Carolinas. It abounds on the rice plantations, where it does good service in destroying field-mice, large grubs and insects, pouncing on them like a hawk.

Bell, who traveled from Moscow, through Siberia to Peking, says that in Russia, these birds are often kept tame in the houses. He had one given him which he taught to perch on a sharpened stick fixed in the wall of his department. Whenever a small bird was let loose in the room,

"His flaming eyes dart forth a piercing ray,"

and immediately flying from his perch, the little bird was seized by the head, so as almost instantly to kill it. He would then carry it to his perch and spit it on the sharpened end, drawing it on carefully and forcibly with his bill and claws. If several birds were given him he would treat them all, one after another, in the same manner. These were so fixed that they hung by the neck until he was at leisure to devour them.

A gentleman traveling in America, observing that several grasshoppers were stuck upon the sharp, thorny branches of the trees, inquired the cause, and was told that they were thus spitted by the great shrike. On further inquiry, he was led to suppose that this was an instinctive stratagem adopted by the shrike in order to decoy the smaller birds, which feed on insects, into a situation from whence he could dart and seize them (but, as we have stated before, this motive in the bird is doubted by some).

He is called in America "Nine-killer," from the notion that he thus sticks up nine grasshoppers in succession.

We can also add the testimony of personal observation to the bird-destroying capabilities of this shrike. A few months ago, a lady kindly presented to us a box containing several nestling birds, each pierced by a thorn, which she said had been killed and stuck there by the great shrike. Thinking that there might possibly have been some mistake about the slayer, we asked if it could be procured, and in a few more days another box was sent, containing a fine shrike and another impaled victim. Most of the dead birds were headless, and in every case the thorn, instead of transfixing the body, had been thrust between the skin and the muscles, but in so firm a manner that to draw it out again required considerable force. The victims were very small, and too much dilapidated for us to ascertain their species.

In all the butcher-birds the legs and claws are weak, and are never used in tearing their prey; this is effected by their powerful bill, and in this they differ from the true birds of prey, which strike and tear with their talons.

The Key of Death.

BY B. C. MORSEBEE.

In the Arsenal at Venice is a large collection of curious weapons. It is said to contain a specimen of every kind of weapon used by any nation on the face of the earth.

This collection is visited by a large number of persons every year, and nearly every one passes with scarcely a glance at the most terrible weapon of all; the most terrible, because the most devilish of all save one. Apparently, it is nothing but a large iron key, really, it is a terrible weapon when in the hand of a revengeful murderer.

It was invented in the early part of the seventeenth century, by one Tebaldo, who, disappointed in love, determined to be revenged upon his rival, and gave himself no rest until he had contrived this instrument, which he called "The Key of Death." It is so constructed that the handle may be turned round, which reveals a small spring. This spring being pressed, a very fine needle is driven with considerable force from the opposite end. This needle is so very fine, that the flesh immediately closes over it, leaving no external mark.

Armed with this instrument, Tebaldo waited, in disguise, upon the happy pair at the door of the church, and found an opportunity to drive the needle into the breast of his rival. At the time-being, the bridegroom had no suspicion of his injury, but, during the marriage ceremony, he was seized with a sharp pain in his side, and fell fainting to the floor. He was carried to his home, and physicians were called, but they were unable to discover his disease, and in two or three days the unhappy man died.

Tebaldo now waited upon the parents of the lady, with renewed proposals of marriage. He was again refused, and they, too, perished in a few days. A careful examination of their bodies was made by the medical faculty, which resulted in the finding of the needle. Shortly after this, Tebaldo renewed his proposal to the lady herself, by whom he was spurned with contempt. Beside himself with rage, he attempted to wound her, but she discovered his intention, and he was executed on the gibbet.

Carbon.

BY JAS. P. DUFFY.

Carbon is an extremely important and very abundant element, being universally distributed in nature. It is found in nearly all animal and vegetable substances. In the form of coal it is one of the most valuable products of our country; as a carbonic acid it floats in the air we breathe; it is part of ourselves, and constitutes a good proportion of the plants which surrounds us. The most valued of all gems, the diamond, is but crystallized carbon, another form existing in striking contrast to it, viz., the soot which defiles our chimneys. Combined with hydrogen, carbon affords us coal gas; with oxygen, in various proportions, it produces acids; with hydrogen and oxygen, it forms sugar and starch; and to its other combinations we are indebted for animal and vegetable oils, alcohol, ether, and various other substances, too numerous to mention.

The most ordinary form of carbon is that of wood charcoal, which is, however, mixed with saline and earthy matter; the purest form with which we are acquainted being the diamond, and next to this, the well known substance, "black lead," which however does not contain any lead in its composition. These three will be described separately in future articles.

Carbon combines with oxygen to form carbonic oxide; which burns with a pale-blue flame, and is the cause of the lambent flame which is often seen arising from brick kilns. It can only be found in the gaseous form, and may be produced by heating in a flask fitted with a bent tube, some oxalic acid in crystals, to which a little sulphuric acid has been added. The bent tube must be fitted to the cork of a jar filled with water, another bent tube passing through the same cork to the jar in which it is to be received.

Carbonic acid results from the union of one-part carbon with two of oxygen. It is not poisonous, but owing to the absence of oxygen destroys life if respired. It is the cause of the effervescence of soda water, malt liquors, etc., and though deadly to the lungs, acts as a healthy stimulant to the stomach.

At ordinary temperature carbonic acid is a transparent, colorless gas, of a slight acid taste and smell. It is produced in large quantities during respiration, fermentation, etc., lime water being the best test for its presence, as the carbonic acid instantly forms chalk on coming in contact with it. The following experiment will illustrate the fact that carbonic acid is produced during respiration:—Pour into a small glass a little lime water, and then, by means of a glass tube, blow from the mouth into the water. After a short time the lime water will become milky, owing to the carbonic acid driven from the lungs combining with the lime and forming chalk.

A very large amount of carbonic acid is also produced by the combustion of candles, coke and charcoal, and that produced from the last named source has often been employed for suicidal purposes.

The First Lady-Visitor in Congress.

Many of the most valued customs of social and public life—ornamental as well as useful—have been gradually learned. It was thus that "ladies in the gallery" came to be a Congress fashion; and it would be much harder now, probably, to discontinue it, than it was ninety years ago to introduce it.

"For some time after Congress commenced its deliberations no ladies were admitted to hear them. But when the famous John Jay treaty with Great Britain was brought home for ratification, the ladies expressed a desire to hear the debate in the House on the appropriation necessary to carry it into effect. Mrs. Langdon, the wife of a member of Congress from New Hampshire, one day expressed her regret to Mr. Ames, of Massachusetts, that she could not hear a speech which it was known that he was to make the next day. He gallantly invited her to come, and by a little personal entreaty silenced one or two who were disposed to object, so that she and a party of female friends were permitted to occupy seats in the gallery.

"Since then ladies have been regular attendants upon the debates, some taking their crochet-work to amuse them during routine business, and nearly all going down to the lunch-room under Congressional escort."

ONE bad example spoils many good precepts.

Irresolution.

There are few conditions of mind more painful to endure, and more fatal to efficiency or success, than irresolution. Most of us can recall occasions when we have been thus afflicted, hesitating anxiously between two opposite courses, preferring first one and then the other, as their several advantages present themselves, becoming each moment more confused and uncertain, and, though vexed and ashamed of the delay, yet utterly unable to end it by a decision. We may be happy, if such a condition is rare and exceptional with us; if our usual habit is to think deliberately, decide resolutely, and act firmly.

The irresolute man is continually wasting energy. The power that should be economized for action he consumes in anxious alternations of opinion. Does he propose a journey, a business enterprise, or some change in his mode of life, he is torn with conflicting thoughts as to its desirability. The inducements to carry it out appear in glowing colors, and he thinks his purpose is settled; then possibilities of failure and fears of disappointment bear on him so strongly that he almost renounces it. Again convictions of its benefit press with renewed force, and he oscillates most painfully between the two courses, not having sufficient firmness either to undertake or relinquish the enterprise. Meanwhile the delay itself frequently settles the matter; the time in which he might have chosen for himself passes away, and he is forced to accept what fate has left him without any reference to his judgment or preference. Directly the power of choice is removed, all the advantages of the opposite plan rush upon him with tenfold force; he is sure that that would have been his selection had the opportunity been prolonged; and consequently, acting upon compulsion, without heart or faith, and, indeed, against what he now thinks his better judgment, his failure and his discontent are both insured. In the smaller details of life, this irresolution, if less disastrous, is even more vexatious and annoying. To waver about trifles, to hesitate, and doubt, and balance probabilities upon every little matter that presents itself for immediate decision, is a lamentable waste of power, distressing to one's self, and irritating to every looker-on. It is better to make some mistakes, we should all declare, than to thus constantly lose time and force in debating the *pro* and *con* of each petty action.

A habit of self-dependence is one most important ingredient in a resolute character. He who, either from inclination or the force of circumstances, has always leaned upon others, can hardly be expected to show much energy in decision, or much inflexibility of purpose. It is just here that freedom becomes so palpable a blessing, giving to every man and woman the opportunity for acquiring a self-reliance that nothing else can supply.

It is perhaps hardly possible for one who has attained maturity with a vacillating, irresolute nature ever to become a decided and resolute character. Still there are various degrees of this valuable quality, and it is within the power of each individual so to discipline himself as to strengthen and increase it. A thoughtful survey of every important subject on which we are called to decide is necessary to this end. There is a time for deliberation as well as for action, and when the former is crowded into the latter a wise decision is impossible. All aids to this end should be warmly welcomed, not as props to support our weakness but as means to correct our judgment. The inflexibility that refuses to receive such aid and only seeks to enforce its own will is obstinacy, not decision. When, however, we have brought all foreign help into connection with our own judgment, and have thus formed the best conclusion we can in the time allowed, we must, as far as possible, dismiss further consideration and proceed to immediate action. In the less important details of daily life, we shall not greatly err in forcing ourselves to an immediate choice, though we may still question its wisdom. This self-compulsion will be most salutary, especially if we cultivate the habit of revising our actions with a view to avoiding in the future the mistakes into which we may have fallen.

Winter Weather in San Francisco.

A pleasant winter day in San Francisco is an experience worth having, and yesterday and to-day have more than atoned for the discomforts of the preceding week of rain. The streets have dried as if by magic, plants and flowers of all kinds have put forth all their glories, and

fragrance and beauty fill the air. Huge fuchsias, cultivated with so much trouble in the East, and then niggardly of their blooms, climb up lofty trellises and on the sides of houses, and are one mass of rich blossoms. Roses of most gorgeous hues and astonishing size flaunt themselves in every doorway, and here and there some small house is quite buried beneath their luxuriance. Horse-shoe geraniums, as high as a tall man's head, glow with scarlet, and hawthorns form great hedges of sweetness. Here, too, grow all manner of trees; such tropical and semi-tropical growths as the palm, mimosa, orange, fig and century plant alternate with northern spruces and pines from the summits of the mountains, and the air is redolent with the peculiar camphor-like odor of the Australian gum-tree or eucalyptus, that great destroyer of miasmas, which is being extensively cultivated all over the state. In the church that I attended, yesterday, the preacher's desk was covered with a great cushion of red and white roses, while huge bouquets of callas and other rich flowers stood all about the platform, the whole making a display which neither love nor money could procure in the East. And yet, while this soil and climate are so kindly disposed toward flowers, they seem to have a mortal antipathy to weeds and bugs, those abominations of horticulturists, for, while I see flowers everywhere, I seldom see any one attending them, and have yet to see the first rose—that choicest dish of bug epicures—suffering from the inroads of slugs. Outside the city the effects of the rain are even more marked, and the country, which, ten days ago, was desolate and brown, is now one broad expanse of green, save here and there where the plow has turned up the rich brown sod in smoking furrows. In this country nobody follows the plow; the husbandman rides upon a pair of wheels with a seat between them like that on an eastern mowing-machine, and two plows, skillfully arranged behind, follow him and turn up two furrows at once,—a fashion much superior to and easier than the old, it strikes me. The grass grows so rapidly after the first rains come that it does not take on that deep green tint which it assumes with you, but is of a more delicate hue, very agreeable to the eye, and forming a pleasing combination with the deeper verdure of the live-oaks, the principal native tree of this region.

The sky, both within and without the city, wears that peculiar haze which is the characteristic of a New England Indian summer, and the air is as balmy as a June morning.

Imaginary Miseries.

It is a sad thing to see a young person so absorbed in the imaginary miseries of some fancied hero or heroine of whom they are reading in an exciting romance, that they have no heart or sympathy left for the world of real sorrow and suffering close around them. The habitual novel reader, instead of growing sympathetic with trouble, is always impatient and fretful when called off to actual cares and duties. By this you may know, girls, that your reading is doing you harm. If, when mother calls, you are vexed, and think yourself a kind of ill-treated heroine, throw that book away. Burn it if it belongs to yourself, and don't let the evil go any further. There is no limit to the silliness of these pictured miseries. A skillful pen can make a mole-hill into a mountain. A father once, to show his children the folly of weeping over so much imaginary trouble, told them such a pathetic story of a poor old faithful broom, left out in the snows and blasts one winter's night beside the pump in the yard, until the clock struck eleven, then twelve, and one, dwelling on the direful details so sadly that all the little company were in tears. He then showed them that over just such nonsensical woes they were wasting thought and feeling to the neglect of what was real and close beside them.

It is often given as an excuse that a book has real lovely sentiments woven into it, and at times pure Christian sentiment. But what would you think of a miller who should search through bushels of chaff to find a few grains of wheat, when there lay his great golden granaries all untouched. Just so it is with the novel reader hunting for anything good in these modern sensational fictions. The world is so full of really golden works, so few of which, at the best, we can even get time to read, that it seems worse than idleness to spend time over that which only harms us, which in no way better fits us for life's duties.

Choose the best book at command always when you sit down to read, if you would make your reading a real profit.



FAR BETTER.

BY M. M. P.

There is a glory, rich, unmeasured,
In the hedges and the dingles,
For the Spring-time has untreaured
All the pomp that nature mingles.
Gusts of fragrance in the grasses,
In the skies a softened splendor,
In the copse and woodland passes
Songs of birds in cadence tender.

Over baby's grave are blowing,
Sweet and shy, the star-eyed daisies,
Where she slumbers, all unknowing
Of the world, its cares and crazes.
Were she here to hush and listen
To the skylark singing yonder,
How the changeful eyes would glisten,
Widening in delighted wonder.

Oh, my baby! I would gather
All the beauties of the dingles,
Fairy lilies, elfin heather,
Pebbles from the golden shingles;
I would tell thee many a story
Of the wonder-life of summer,
I would show thee all the glory
Of each winged and leaved new-comer.

But the summer's bliss and wonder,
Crosses not thy purer vision,
Thou, within the Eden yonder,
Born into the life Elysian.
Sweet and stainless, thou shalt flourish,
In the holy air of heaven,
And God's dew of love shall nourish
That new life which He has given.

He whose pity stooped to fold thee
Tenderly from grief and passion,
In that calmer home shall mould thee
In His own, His royal fashion.
Taken into His strong keeping,
Sheltered from the world's wild weather,
In the sowing and the reaping,
Christ shall give us joy together.

The Pulse,

Everyone knows that among the numerous inquiries and examinations which precede the prescription of a careful physician, the state of the pulse is never omitted; yet as it is probable that few of our readers are acquainted with the reasons for this inquiry, or, what is the same thing, with the facts to be learned from it, we think it may not be uninteresting if we enumerate some of the more prominent ones

It is almost unnecessary to premise that by the pulse is meant the beat of an artery, and that the one commonly chosen for examination is the radial artery, which beats at the wrist. The first point generally attended to is the number of the beats, and since in all other medical questions, it is necessary to be acquainted with the state of health in order to recognize any deviation from it, we must mention the ordinary frequency of the pulse at different ages.

In the new-born infant it is from 130 to 140 in a minute, but decreases as life advances, so that in a middle-aged adult in perfect health, it is from 72 to 75. In the decline of life it is slower than this, and falls to about 60. It is obvious that if we could suppose a practitioner ignorant of these plain facts, he would be liable to make the most absurd blunders, and might imagine a boy of ten to be laboring under some grievous disease because his pulse had not the slow sobriety of his grandfather's. The quickness of the pulse affords most important information. If in a person, for example, whose pulse is usually 72, the beats rise in number to 98, some alarming disease is certainly present; or, on the other hand, should it have permanently sunk to 50, it is but too probable that the source of the circulation, the heart itself, is laboring under incurable disease, or that some other of the great springs of life is irredeemably injured. Supposing, again, the pulse to be 72, each beat ought to occur at an interval of five-sixths of a second; but should any deviation from this rhythm be perceived, the pulse is then said to be irregular. The varieties of irregularity are indefinite; but there is one so remarkable as to deserve particular mention. It will happen sometimes that the interval between two beats is so much longer than was expected, that it would seem that one beat had been omitted; in this case the pulse is said to be an intermittent one. When the action of the heart is irregular, the beat of the pulse is so likewise; but it will occasionally happen that the latter irregularity takes place without the former one, from some morbid cause existing between the heart and wrist. It is hardly necessary to observe, that, in all doubtful cases, the physician examines the pulsation of the heart as well as that at the wrist.

The Silence of Jerusalem.

Those who have not enjoyed the great privilege of seeing Selrus' fine painting of ancient and modern Jerusalem, now exhibiting through the country, will be interested in any description of the Holy City that gives them an idea of its appearance. Those who have seen the paintings will of course appreciate the description all the more.

An American is struck by the silence embosoming a community supposed to number thirty thousand inhabitants. Palestine has no roads; Jerusalem no factories; the Jews no gayeties, and so a graveyard stillness broods around Mount Zion. Dr. McLeod conversed from the Temple area with his brother upon the Mount of Oliver, explaining practically how the children's hosannahs might have been heard on the first Palm Sunday by indignant Pharisees in the Court of the Gentiles. But on fine days the solitude folding itself around the city is really wonderful. Among those graves of nearly all nations, you may look long at noonday for a moving thing, for a stray horse, for a child at play.

As vast numbers are buried where the resurrection is expected to begin, in the valleys of Jehoshaphat, it is no exaggeration to say that every inch of ground along the entire eastern slope is covered with Turk and Greek, Armenian and Catholic, Jew and Gentile tombstones. The most interesting, of course, are those that profess to honor prophets, apostles and kings, the graves being cut into the big rock, some of them many-chambered and beautifully ornamented on the front, though not to compare with the immense sepulchres of the Egyptian Thebes. The finest view of the city is undoubtedly that which the traveler gets last from the east, upon that grand road from Bethany, which Pompey took, rather than that ancient mule-path which Jesus often trod. Here you have in full view the grand Mosque of Omar, towering over the entire scenery, a fairy-like building, that lies to the west. On the south is the high pile of the Armenian Convent and the dome over David's Tomb. At the southwest corner stands Herod's Tower, a stately relic, simple and grand. Next to this are seen the two domes over the Holy Sepulchre, and the long pass of the Latin Convent stretching to the northwest.

FAMILIAR FACES AND PLACES.

There comes a time to many of us, often at the early twilight of a pleasant evening, when the mind goes out in fancy and reality, and muses on the past as it was, on the present as it is, and the future as it may be.

"Who hath not shared that calm so still and deep,
The voiceless thought that would not speak but weep,
A holy concord and a bright regret,
A glorious sympathy with suns that set?"

It is a beautiful thought that the mind may encompass so much in so brief a period, that it may journey while at home. Slight events of the past may share our thoughts, for life is a collection of little things. A smile from one, a kindly greeting from another, a considerate word said, or unselfish act committed by a friend of by-gone days, will rise before us from memory, though the actors themselves may have passed from our sphere of life—perhaps sleep under the clouds of the valley.

Take up your photograph album, and if it has not been looked over for some time, what a crowd of reminiscences follow, as the familiar faces appear one after another. Awkward and old-fashioned though many of them would seem to others, we see only the real individuals reflected through the unflattering pictures, and appreciative smiles, kind hearts and friendly eyes encourage; unassuming, agreeable ways please, and sympathetic voices and jolly laughter sound in our ears.

My own album is half full of pictures dear to me, that I know seem neither good nor beautiful to strangers. There are pictures of brothers and sisters taken when we were children together. Here sits my dear brother John, thoughtfully studying something on the carpet, with compressed lips and youthful curiosity. He wears a boy's jacket, that seems too tight for his growing proportions, down into which his chin is crowded, depriving him of that convenient and necessary part of the human anatomy—a neck; while one little chubby hand, with the fingers spread apart, presents, to say the least, a prominent feature of the likeness. Next to this is one of my own, taken in my eleventh year, which I never exhibit to my friends. My dress is an ancient long, tight-waisted one; hair, short and bushy, is pushed behind my ears, and I sit exceedingly stiff and straight, with a hand on either knee. One of my brothers used to tell me "it looked like Robert Bruce on his war horse." Many times I have been tempted to destroy it, but still keep it for "Auld Lang Syne." I recollect with what ecstatic feelings I sat for this uncouth creation, and the self-complacency with which I changed the position of my hands to their present position, as being more becoming, after the artist had properly adjusted them.

Space will not permit a description of others that we used to laugh at, but now prize more highly than the improved modern ones. They were taken when our family circle was complete. One after another the beloved ones have passed to the other side of the river, until only John and I remain to recall the incidents of happy youthful days for aye departed.

Then, how many familiar places, nooks and corners there are in this grand old world, where one loves to linger and dream. Last year we crossed the great waters and traveled in England, France and Scotland. Went to Paris and saw its vivacious people of pleasure in their own gay city; saw the Tuilleries in ruins from the Commune; but restored their splendor in imagination, and peopled their spacious halls with proud lords and high-born dames; beheld Napoleon III. in the height of his power, and his lovely Empress in all her stately grace moving through its corridors. Alas! he lay low then, and Eugenie, an exile from her splendid home, at Chiselhurst, a saddened, fading woman.

We visited the Louvre and its antique marbles; viewed the grand palace of Louis XIV. at Versailles, with its elaborate, extensive gardens; and fountains, cascades and statuary meeting the eye at every turn.

Upon these grounds vast bodies of laborers, including thirty thousand soldiers, were at one time employed. What a throng of historical memories are associated with this home of royalty. Close by are the Grand Trianon and Petit Trianon, with their respective gardens. I felt particularly interested in the latter, as being the favorite residence of the beautiful, ill-fated Marie Antoinette. The grounds are said to be laid out in the same walks and flower beds as during her occupancy, and the windows of the apartments she preferred overlook the garden.

We drove down the long avenues bordered with great trees, planted by Louis XIV., extending miles on miles, realizing in a measure how the impoverished people were driven to the frenzy, by royal extravagance, that finally resulted in the French revolution.

One is usually disappointed in visiting places they have heard much of, as we were in viewing Buckingham Palace, on returning to London. It is a rather long, brown-stone building, without ornament, and looks anything but a palace; although its internal appointments may be very imposing; but the palace, royal buildings and grounds at Versailles far exceeded even our expectations in grandeur and extent.

After a few weeks in the great city of London, we set off for Edinburgh—the quaintest, most picturesque old city in the world, with its castle rearing its battlements away up aloft from the towering rocks, which are three hundred feet high.

Old Holyrood Palace, with its abbey in ruins and peopled with spectres of ages, is an object of intense interest. In the once beautiful abbey took place the coronation and marriage of kings and queens. Here the unfortunate Mary, Queen of Scots, was married to Darnley, and here the latter with many other notable persons are buried.

The rooms occupied by Queen Mary still remain as she left them, containing her furniture and bed. The bed is surrounded by an iron railing, for fear some one should touch its ancient frame and shiver it to atoms, like the "One Hoss Shay." A breath it seems would almost do it. Leading from the bed-chamber is the little room where the queen, with her maids of honor and Rizzio were at supper, when Darnley and his masked accomplices, ascending the private staircase, burst into their midst, dragged the doomed Rizzio from the royal presence, and left him bleeding and dying in the bed chamber. We were showed the spot where he lay, which is indicated by a spot of darkness on the floor. An incredulous member of our party solemnly remarked: "It looks to me like sheep's blood, dabbled on with a sponge!" to the utter disgust of the guide, who indignantly declared that it was really the stain made by the crimson blood of the Italian. At all events it designates the spot where he lay, and unhappy Mary had the partition of her bedchamber moved in to shut out the dreadful place from her sight. The seam in the ceiling where the partition formerly stood is still to be seen. There is a door leading from the palace to the abbey, and directly under the doorway the body of Rizzio was buried by the queen's order, that his assassins might have the crime recalled to mind each time they crossed the threshold; and though time has destroyed the abbey, and the rains and winds of heaven find free entrance there, Rizzio's name can still be deciphered on the ancient slab beneath. We stood within the ruined abbey, looking up at the clear blue sky and at the ivy that, growing up from the outside, falls over and runs along the carved masonry, and thought, could the ancient crumbling stones but speak, what a volume of interest, gathered from the seven hundred and forty-nine years of its existence, lies within its voiceless walls. It was founded in 1128 by David I., was dilapidated by Edward II. in 1322, burnt by Richard II. in 1385, restored by Abbot Crawford about the end of the fifteenth century, extensively demolished by the English in 1547, sacked by a mob in 1678, and restored, what remained of it, in 1758, and as if weary and worn with years, fell suddenly to ruin in 1768.

Edinburgh is an infatigating city. Every hill, tree and rock teems with interest. We saw Davie Dean's cottage as described in "The Heart of Midlothian;" the house in which John Knox lived, and the window from which he so vehemently preached to the people. Other places in Edinburgh, however, though of but little account to the generality of people, offered still greater attractions to us.

Years ago a young Scotchman came to America, remained several years, and then went back for the woman he loved and married her. I entered the house in which they were united in the holy bonds of matrimony; sat in the room where their first child was born, was told little incidents that occurred in the house, and felt untold interest because I was the second daughter given to them—my own parents. I visited the girlhood home of my mother; saw, in imagination, my father coming down the beautiful country road to meet her; saw them in conversation and wept because I had heard many times from their lips the story, with a description of the brick house, the fields around, and the street bordered by great trees and hawthorn hedges, which in May, were always a mass of bloom. I was taken by friends to the church where their two families had attended service for centuries; sat in the very pews and saw the baptistry where my parents descended with Christ in baptism. Then driving to Portobello, the seaport of Scotland, I visited the home where they lived several years before coming to America. A two story brown house, close by the great rolling ocean, which dashes with fury at times, over a beach of snow-white sand. My mother loved that sandy shore; how many times she told me so!

They died many years ago; and do you wonder that for days after leaving that ancient city, my mind wandered again and again over the same route, treasuring up the appearance of every house, room, street, locality, yes! flower, vine and tree? Let those of us who have old homesteads, cherish, protect and reverence them, considering the occupancy of them a great privilege. There is a satisfaction felt in knowing that our predecessors cultivated the same fields, loitered by the same brook, traversed the same hill, ate of the fruit of the orchard, and sat on the same garden seat until gathered to their fathers on the hillside. Here are home feelings, associations and attachments to be found nowhere else in the world.

The following poem, "The Garden Seat," (see Cut) will perhaps not inappropriately close our remarks:

"The garden seat was overgrown in spring
With young, sweet flowers swathed in purest green;
I saw a little child her toy book bring,
With pictures of the fays and fairy queen;
She played in wonderment upon the seat,
And laughed, with laughing blossoms o'er her head;
She sat with daisies round about her feet,
Till she was called to supper and to bed.

The seat in summertime was in the shade
Of mingled boughs that swayed unto the ground,
And flecked the path, and pleasant music made;
And bees were buzzing in the blooms around;
A maiden with a book of love tales came,
And read a sweet romance, to her all truth;
She closed the book, and whispered some one's name,
Then went away to meet a favored youth.

When misty autumn came, and currants hung
In heavy, ripened clusters by the wall,
Chill winds came from the meadow-lands and swung
The colored trees that let their jewels fall;
Upon the seat a married couple stayed,
With just a touch of care in their content;
They watched the leaves that on the dry path played,
Then arm-in-arm away they slowly went.

When winter came and all the flow'rs were lost,
And cold winds shrieked, and trees were black and bare,
The garden seat was whitened with the frost,
And sparrows hopped in vain for crumbs there;
An old man came alone, with pale cheeks worn,
And sat till night, and then he did not go;
The snow fell with the dark, and in the morn
The old man yet was there—still as the snow."

JENNETTE GIBSON.

Sodium.

BY JAS. P. DUFFY.

Sodium is a metal which is found in nature always combined with some other substance. It possesses some very curious properties, the chief among which is, that in its elementary condition it cannot exist in contact with either air or water, and this is the only reason that can be assigned for its being always found in combination with other metals and earths. Whilst the other metals are, generally speaking, dense and heavy, sodium is lighter than water, and, when freshly cut, has the same shining appearance possessed by silver. In other respects it is somewhat similar to potassium, being prepared in an exactly similar manner, and requiring, to prevent the attacks of the oxygen in the atmosphere, constant immersion in naphtha.

Its combinations are very useful; some of them, such as the bi-carbonate of soda and caustic soda, being manufactured in large quantities.

As found in nature, its combinations are mostly with

chlorine, carbon, sulphur, nitre and borax. The first of these, chloride of sodium, is salt—the manufacture and chemical description of which has already been described in these columns, as has also been the next, bi-carbonate of soda.

Sodium and sulphur in combination afford sodium sulphate, a white anhydrous salt, long known as "Glauber's Salts." To illustrate some of its properties, dissolve a little of this salt in boiling water to saturation, place the solution in a glass flask to cool, and carefully cork the flask. If it be kept quite still no change will take place. If, however, a small grain of sand be dropped into the mixture, the whole solution will immediately shoot out into beautiful crystals and be converted into a solid mass.

Sodium hyposulphate is a crystalline body, produced by heating the above with sulphur. It is extensively employed as a fixing agent by photographers, who use it in solution with water for dissolving oxide of silver.

Sodium biborate (borax) is prepared by adding carbonate of soda to boric acid. The latter is largely imported from Tuscany, which affords a natural supply of it. It is much used as a flux by metallurgists; with oxides it forms glass, and it is made use of in making artificial gems.

Sodium hydrate (caustic soda) is made by dissolving carbonate of soda in boiling water, and adding a solution of slaked lime and water of the consistency of cream. The latter solution causes a precipitate of calcium carbonate to form, and sodium hydrate remains in the solution. The latter is separated from the former and evaporated to the requisite strength; when at nearly a red heat, an oily liquid forms which hardens, on cooling, into a white mass, known and extensively used by soap-makers as caustic soda.

A Long Speech.

BY J. J. WORTENDYKE.

The longest speech on record is believed to have been that made by Mr. De Cosmos, in the Legislature of British Columbia, when a measure was pending whose passage would take from a great many settlers their lands. De Cosmos was in a hopeless minority. The job had been held back till the eve of the close of the session. Unless legislation was taken before noon of a certain day, the act of confiscation would fail. The day before the expiration of the limitation, De Cosmos got the floor about 10 A. M., and began his speech against the bill.

His friends cared little, for they supposed that by one or two o'clock he would be through, and the bill would be put on its passage. One o'clock came and De Cosmos was still speaking—had not more than entered upon the subject. Two o'clock, he was saying "in the second place." Three o'clock, he produced a fearful bundle of evidence, and insisted upon reading it.

The majority began to have a suspicion of the truth—he was going to speak till next noon, and kill the bill. For a while they made merry over it; but as it came on dark they began to get alarmed. They tried interruptions, but soon abandoned them, because each one afforded a chance to digress and gain time.

They tried to shout him down, but that gave him breathing space, and finally they settled down to watch the combat between strength of will and weakness of body. They gave him no mercy. No adjournment for dinner; no chance to do more than wet his lips with water; no wandering from his subject; no sitting down. Twilight darkened; the gas was lighted—members slipped out to dinner in relays, and returned to sleep in squads, but De Cosmos went on. The Speaker, to whom he was addressing himself, was alternately dozing, sleeping, and trying to look wide awake. Day dawned, and the majority slipped out in squads to breakfast and to wash, and the speaker still held on. It can't be said it was a very logical, eloquent, or sustained speech. There were digressions in it—repetitions also. But still the speaker kept on. At last noon came to a baffled majority, livid with rage and impotence, and a single man who was triumphant, though his voice had sunk to a husky whisper. His eyes were almost shut, and were bleared and bloodshot; his legs tottered under him, and his lips were cracked and smeared with blood. De Cosmos had spoken twenty-six hours, and saved the settlers their lands.

Marriages and Homes.

BY NELLY MARSHALL M'AFEE.

Somewhere—a long while ago—I read a paragraph not longer than my little finger, but it was so full of condensed soul and sense that I committed it to memory. It ran thus:

"Six things are requisite to create a 'happy home.' Integrity must be the architect, and tidiness the upholsterer. It must be warmed by affection, and lighted up with cheerfulness, and industry must be the ventilator, renewing the atmosphere, and bringing in fresh salubrity day by day; while over all, as a protecting glory and a canopy, nothing will suffice except the glory of God."

This paragraph awakened me to a sincere study of social and marital relations as they *do*, and as they *should*, exist; and my study has enabled me to crystallize into an essay the convictions born of that profound contemplation.

Young ladies engrossed with the idea of bridal veils, and orange blossoms, and handsome *trousseaux*, seldom if ever give a thought, unless vaguely, to the happiness and contentment that is to come—or is not to come—as a life-long crown of glory, after the marriage ceremony and honeymoon are over and gone.

Sometimes they choose lazy men; sometimes they fall in love with a moustache, or a fast young man who dances gracefully and rides horseback well, whose pantaloons are fashionably cut, whose boots are always well polished, whose hair is pomaded and artificially curled, and who perfumes himself with Low's, and Bazin's, and Lubin's extracts, as Rimmel perfumes his gilt-edged paper and embossed envelopes—to distraction; who loafs around and is afraid to work, for fear of spoiling his hands or his clothes.

Others "fall in love" with street-corner-watching gentry, or such ilk as hang around church doors on Sunday "to see the girls come out."

If girls of eighteen had only the experience and judgment that generally comes to them by the time they are twenty-five, these loungers would disappear from the face of the earth like frogs when the first snow falls. But, alas! they have not, and consequently the severe and bitter recipe will never be given them as a curative test.

Modern *demoiselles* do not know how to make such parlor knights "stand in the cold" nor how to give them "the mitten." And so they marry lazy, flippant, good-for-nothing young men, and settle themselves down, sooner or later, to lives of sorrow, disappointment and chagrin, instead of urging them first to go to work earnestly and honestly, and endeavor to be sober and industrious in order to win them.

A woman selecting a husband, or being sought as a wife, ought to know before she yields her heart or hand whether the suitor has a profession or a trade; whether he is a skillful artisan or a thrifty, industrious farmer—up early and late, able to do his own work, and not ashamed of it either; whether his "hobby" is to complain of "hard times" instead of struggling to brighten them; whether he knows how to manage a fortune if he has one; whether he works six days in his profession, and on Sunday rests, and goes to church to praise God.

If they would take the trouble to find out these things, they would never have cause to regret their marriage—they would always love and respect their husbands; and moreover, never lack a well-provided home.

But they don't take the trouble! They go on, as they will probably continue to do while the earth revolves on its axis, estimating a young man's worth by the nicety of the tailor's fit, the length and silkiness of his moustache, and his ability to talk opera and soft nonsense.

One fact, if generally known, is too often forgotten, and that is, that love and confidence are the foundation stones of perfect domestic bliss; that without these all is chaos and doubt and despair, and happiness is a myth lingering only in the heart's Utopia.

There is a trite aphorism about Love flying out at the window when Poverty comes in at the door. There is no truth in this where the affection existing is genuine; and, indeed, there is never need for more fortune than that which insures comfort. Those persons who marry with moderate means are generally the ones who taste the ethereal ether of life. No matter which one brings the "lucre" to the domestic treasury, so that the hearts are in the right place. And certain it is that such do-

mestic bliss is founded upon a rock. Happiness is another name for love; for where love is there is happiness also; and with these there is contentment too, for true love inspires forbearance and gentleness; and these domestic qualities ever and always flood a home with eternal sunshine, bright and visible and blessed as the smile of God!

Society holds a wife amenable for her example, for the honor and happiness of her husband; and God holds her amenable for the rich talents intrusted to her care and improvement, for no woman can be true to any man while false to herself!

The Last Test of Fidelity.

The reign of Napoleon, worried and ransacked as it has been by the writers of memoirs, recollections and histories, is a mine that still contains a multitude of rich, and as yet, unexplored veins. The history of the secret associations that sprang up during the latter days of the empire, would form a most curious and interesting volume, and there would be no lack of material wherewith to fill it. The society of the United Brothers alone would furnish pages of the most intense and absorbing interest, while nothing could appeal more forcibly to the imagination than the strange and dramatic episodes connected with its mysterious initiations. Perhaps a hundred incidents might be related as striking and well conceived as the following:

An officer of the French army having incurred the suspicion or resentment of the emperor, thought it expedient to abandon his country and take refuge in one of the Austrian provinces, and here he became advised of and initiated into a society, the object of whose formation was to hurl to the ground the Colossus whose arm smote and governed the whole continent of Europe with a sceptre of iron. One day a letter was brought to him containing the usual signs and passwords of the society, and requiring him to repair on the following night to a secluded spot in a forest, where he would meet with some of his associates. He went, but found nobody. The orders were repeated four times, at intervals of a few days, and four times the officer sought the appointed place, with no better success than at first.

On the fifth night of his appearance at the rendezvous, after waiting some time, he was on the point of returning, when loud cries suddenly arrested his attention. Drawing his sword, he hastened to the spot whence they seemed to proceed, and was fired upon by three men, who, seeing that he was unwounded, instantly took to flight; but at his feet lay a bleeding corpse, in which, by the feeble light of the moon, he in vain sought for tokens of animation. He was yet bending over the dead man, when a detachment of chasseurs, summoned, apparently, by the noise of the pistols that had been discharged at himself, came suddenly up, and arrested him as the assassin. He was loaded with chains, tried the next day, and condemned to die for the supposed crime. His execution was ordered to take place at midnight.

Surrounded by the ministers of justice, he was led, at a slow pace, by the light of torches, and amid the funeral toiling of bells, to a vast square, in the centre of which was a scaffold, environed by horsemen; beyond these was a numerous group of spectators, who, muttered impatiently, and, at intervals, sent forth a cry of abhorrence. The victim mounted the scaffold, his sentence was read, and the last act of the tragedy was on the point of fulfillment, when an officer let fall a word of hope.

An edict had just been promulgated by the government, offering pardon and life to any condemned criminal who should disclose the members and secret tokens of a particular association, the existence of which was suspected; it was that of which the Frenchman to whom these words were addressed had lately become a member. He was questioned, but denied all knowledge; they urged him to confess, with promises of additional reward—his only reply was a demand for immediate death—and his initiation was completed. All that had passed was but a terrible trial of his fidelity; those who surrounded him were members of the society, and every incident that has been described, from the time of the first summons to the last fearful moment of expected death, was only a step in the progress of the fearful experiment by which they sought to determine the trustworthiness of the neophyte.



FAMILY READING.

BY ORPHEUS C. KERR.

An American male parent unto his babes said he,
 "Come hither, pretty little ones, and sit on either knee,
 And tell me what you've lately heard your mother read, and I
 me."

In his fatherly assurance and fond parental way.
 He wanted to discover what the innocents would say
 About a missionary book they'd heard the other day.
 Full of glee spake young Alonzo, all legs and curly hair:
 "You yead about the man they hung, and all the people there;
 And mamma yead the funny part of how it made him swear."
 Joining quickly in, cried Minnie--all waist and dimpled neck--
 "It wasn't half so funny, though, as that about the check
 They caught somebody forging, 'cause he was so green, I
 speck."

"But the thing I liked the bestest," Alonzo piped amain,
 "Was how somebody yunn'd away, and won't come back again,
 And tookt somebody's wife with him upon a yailload tyain."
 "Then you wasn't listening, 'Lonzo," came swift from Minnie
 small,

"When papa yead about the girl that tookt her only shawl,
 And wrapped a baby up in it, and left it in the hall."
 The American male parent his hair arose on end;
 On either knee an infant form he did reverse and bend,
 And from their little mouths straightway made dismal howls
 ascend.

Owls and their Uses.

The utility of the common owl as a destroyer of vermin is scarcely likely to be called in question at the present day. A remarkable instance in point is recorded by Herr Grote, in the Journal of the Hanover agricultural society. Last year this gentleman discovered in his garden an owl's nest built in a hollow tree. When first observed it contained four eggs and the bodies of seven field mice. On the following day six of the mice had been devoured and eight fresh ones introduced in their place. On the third day six more mice were added to the stock, and the carcasses of seven more were found in a contiguous hollow tree. Day after day the same thing was observed, a fresh supply of mice being constantly introduced. From circumstances which are not specifically mentioned, Herr Grote was only able to continue his observations for a period of fourteen days, but within this time the number of mice found in and around the nest was ascertained to be more than two hundred, and in addition to these the wing cases of a large number of dung beetles (*Scarabeus stercorarius*) were found in the same place. In order to avoid any source of possible error in his computation, the observer took the precaution of marking each day's supply of mice when first noticed, so as to make quite sure that none of the bodies should be counted twice.

Trapped by a Spider.

Quite a crowd gathered recently on Greatman street, New Orleans, at a carpenter's shop. Near a bench in the shop hung a mouse, medium-sized, head downward, and around his body was coiled a single thread of a spider's web, which reached to a corner of the bench above, and had its fastening there. On the mouse's tail quietly sat the spider, which seemed to be manipulating the thread, and working it as with a pulley. When caught the mouse was on the ground, and after five or six hours' work, the spider managed to hoist it an inch, and there it hung.

The explanation concerning this singular circumstance is that the mouse was accustomed, when on a predatory excursion, to emerge from a hole under the bench and pass into an inner room. The spider laid a trap in its path, it is conjectured, and yesterday morning, as the mouse was making its accustomed daily rounds, it was caught in the net and securely held, the spider taking up a position on its tail. Although the mouse hung suspended, a dead weight, the thread did not give way, and there it hung helpless between earth and heaven. At night the carpenter closed up his shop, but the spider was still at work, and had completed an inch in the elevation.

African Hunter Surprised by a Leopard.

BY J. W. WORTENDYKE.

Throughout the whole of Central Africa the skin of the leopard is deemed a suitable adornment for persons of princely rank, and is among the most valued insignia of royalty. The leopard ranges throughout the greater part of the vast African continent, although not very common in any except the more untraversed regions. Its skin is distinguished by large complicated spots, each spot being in itself an assemblage of smaller spots, which run generally in about five rows along the entire body.

Some naturalists have asserted the existence in Africa of several distinct varieties of the leopard, but later researches seem to demonstrate pretty clearly that there is in reality but one, such differences as are apparent in individuals being attributed to varieties of habitat.

The high value placed upon the skin of the animal render the killing of a leopard a matter of great rejoicing to the native hunter, but the chase is not unattended with danger.

A party of native hunters were following the spoor of five elands or harte-beests, when suddenly a large leopard sprang from the dense jungle and seized from behind an unlucky native who had lingered in the rear of his comrades. The man struggled desperately to free himself, but in vain, and when the remaining hunters, recovering from their momentary surprise, closed in upon the savage animal, transfixing it with their long spears, and dragged their wounded comrade from his grasp, he proved to be fatally injured and soon expired. The hunters returned to their village, bearing the blood-stained carcass of the leopard upon a rude litter of boughs, as an offering to their chief. The whole village turned out to participate in the ceremony; shouts of rejoicing and the din created by discordant musical instruments filled the air, and the dead leopard was proudly deposited as a trophy at the dusky chieftain's feet, while congratulations were showered upon the triumphant hunters. No one seemed to think of the unlucky victim whose lacerated body brought up the rear of the procession. But human life is cheap in Africa, and the relatives of the slain think their duty fully performed when they have attired the corpse in skins and feathers, painted the face in grotesque colors, and erected over the shallow grave a rude hut formed of the slightest and most perishable materials, which soon fall into decay, and leaves no trace whatever of the burial-place.

PURE soft water is the best of all blood purifiers. It dissolves most every impurity that may find its way to the blood, and passes it off through the skin, lungs and kidneys, thus washing out the blood without any irritation in the system, and without those chemical changes and deposits which are likely to arise from the action of drugs. Why then use doubtful, dangerous, and often injurious drugs for purifying the blood, when pure simple, safe, and pleasant and far more effectual water may be had without money and without price?

GOLDEN SUMMER WEATHER

—IN—

THE COUNTRY.

"What is this melody beneath the grass?
Come hither, stoop and listen—nearer yet;
And push aside the thick and tangled net
Of bending rushes and the brakes' green mass."

And lo! a gurgling brook we find, singing its merry song over the stones and pebbles. Sit down on the mossy bank and enjoy the solitude of Nature, full of musical sounds, and watch the limpid water's ceaseless flow. Keep quiet, and animated nature begins to move—there a clumsy tortoise clambers up a mossy root, half

they were made to do just because they were made to do it and cannot help it, without once stopping to contemplate the individuality of that little atom of animate dust which in our own case we call "I." We may suppose that the grasshopper hops its little life away, blissfully unconscious of the great work it is doing in building up the patience of health-seekers. The cricket chirps in the shadow of some convenient stone, and from the day of its birth to the day of its death, never knows what a soothing power over the tired senses is in its cheerful monotone. The marsh-frogs play their merry chimes night after night, and, so far as they know, do not receive therefor so much as a vote of



HOW GOOD TO WALK BY THE SIDE OF THE STREAM, AND WATCH THE GOLD TROUT LEAP AND PLAY.

buried in the rippling tide, and another soft splash is heard from one that seeks the water. The little minnows leap and play, the birds chirping and singing, bring food to the fledglings in the trees, and a water-snake silently swims across and disappears amid a clump of rushes.

The stream laughs merrily on its way to the sea, the fragrant flowers nod their lovely heads, and the birds sing their sweetest songs of joy.

"I sometimes wonder if the creatures of the woods and fields, the little beings with downy breasts, with shining shards, or silken wings, ever know or think whether they are happy or sad. Apparently they live, because their little bodies are brimful of life, without a thought of self-pity or congratulation, doing what

thanks from a delighted audience. Every thing is restful; every thing seems to do just what it likes to do, just in the way it pleases, and just as long as it pleases, and if some poor unfortunate did not yield up its existence now and then, or if some spiteful wasp did not insist upon taking revenge for unpleasant accidental contiguity, which is not a heavenly characteristic, one might almost fancy man's earth the birds' and insects' heaven, as they sing, fly, and buzz all about us in the summer sun."

Let us wander on to yonder green hillock shaded by a waving elm, and listening, we hear the distant sound of a bell, then the report of a gun, the blast of a horn, the crack of a whip, a shout across the fields, the bellow of a bull, the bark of a dog, the crow of a cock; while the low rustling of things moved by the winds come sweetly to the ear, the melody of the field.

"All is life and stir on the dear old farm. The new mown hay sheds its sweet scent all around, the fruits of the earth are rich with bloom, and the plants and herbs yield their sweets. Bees hum, flies play, and there a covey of young partridges rise out, whirl over, and then suddenly drop again into the sea of green waving corn. From morn till eve these sweet glad sounds go on, and the "heart leaps for joy" when it thinks the good God has made such sights and sounds to cheer our way from day to day through this "vale of tears."

Then, too, what joy there is for one who tries to read *God's* books from all he sees *in life*! Not a bird that soars on high but has its song of praise, not a fly or gnat that wings its flight through the air but has a charm for those who seek God in His works.

Oh, the joy to feel free to breathe the pure air, and tread the soft turf of the downs—to feast our eyes on the golden furze, and rich dark heath with all its tints and hues, with here and there a peep of rocks, and stones grown gray with the beat of the rough winds of long years!

Then how good to walk by the side of the stream, and watch the gold trout leap and play in the warmth of the sun at noon!

Look where one will, the eye meets sights of joy! Oh, none can tell how great the treat to those pent up in a town, with naught but "man's works" to gaze at; to feel (if but for one day) the free, pure air and fresh breeze, and with full rest from toil to view God's work, for in truth, "man made the town, God the green fields and trees."

"All the fragrant air
Was tremulous with the sweet joy of life.
The trilling of bird-music and the hum
Of honey-bees among the dewy flowers
Was woven through the sunny atmosphere
Like the rich warp and woof of some fine web."

And at even, the bats go zig-zagging about on noiseless wing, but with strident cry; night-moths hum in the honey-suckles, and bees, busy up to the last moment before going to bed, about the luscious blossoms of the umbrageous limes. Beetles come booming and blundering through the dewy air; field-cricket chirp on all sides, and we sit on the piazza until dark scarcely knowing how to leave such scenes, but time and tide wait for no man; the bright day is done, the gloom of night is over all; we must say good-night to the song of birds, and the laughing brook, and refresh ourselves with slumber for the work of another day.

Who would not be a farmer? It is joy to live in the country, to perceive sweet odors borne on every breeze—melodious sounds on every side, and feel, in fact, that God is there, and see his works, that they are good. And then, Nature is so bountiful withal—she gives you the soil; you help her and she in return helps you—helps you while you are doing it. She keeps your ground moist when you mellow it, and she lets the air pass into it with its fertility, which she took from negligent barn-yards; and this fertility she leaves with the soil—and thus the farmer and nature are helping each other. Thus our farms are improved. How are they deteriorated? By just the opposite course—by neglect. The more we do for our farms the more nature will aid us, and thus the better will be our land. The truth is, we are only helping nature at the best—and she pays us for what we do for her. The land is still hers; she forever holds the title deed.

If we deal generously with her, how bountifully we are repaid! Do we appreciate the blessings she showers upon us? and with thankful hearts receive the

"Great waves of plenty rolling up
Their golden billows to our feet;
Fields where the ungathered rye is white,
Or heavy with the yellow wheat.
Wealth surging inward from the sea,
And plenty through our land abroad,
With sunshine resting over all;
That everlasting smile of God!"

O, how blindly we grope along, unmindful of all the joy there is in existence—all the beautiful creation above and around us. The old familiar hymn:

"Praise God from whom all blessings flow,
Praise Him all creatures here below,"

should swell in one grand chorus to the throne of Heaven daily, from hearts swelling with love and gratitude, for all the beautiful things bestowed upon mankind.

In the words of the great poet's hymn:—

"My heart is awed within me when I think
Of the great miracle that still goes on
In silence round me—the perpetual work
Of thy creation, finished, yet renewed
Forever. Written on thy works I read
The lesson of thy own eternity.
Lo! all grow old and die—but see again,
How on the faltering footsteps of decay,
Youth presses—ever gay and beautiful youth,
In all its beautiful forms. These lofty trees
Wave not less proudly than their ancestors,
Moulder beneath them. Oh, there is not lost
One of earth's charms: upon her bosom yet,
After the flight of centuries,
The freshness of her far beginning lies,
And yet shall lie. Life mocks the idle hate
Of his arch enemy Death—yea, seats himself
Upon the tyrant's throne—the sepulchre,
And of the triumphs of his ghastly foe,
Makes his own nourishment. For he came forth
From thine own bosom, and shall have no end.

There have been holy men who hid themselves
Deep in the woody wilderness, and gave
Their lives to thought and prayer, till they outlived
The generation born with them, nor seemed
Less aged than the hoary trees and rocks
Around them; and there have been holy men
Who deemed it were not well to pass life thus.
But let me often to these solitudes
Retire, and in thy presence reassure
My feeble virtue. Here its enemies,
The passions, at thy plainer footsteps shrink
And tremble, and are still. Oh, God! when thou
Dost scare the world with tempests, set on fire
The heavens with falling thunderbolts, or fill,
With all the waters of the firmament,
The swift dark whirlwind that uproots the woods
And drowns the villages; when, at thy call,
Uprises the great deep and throws himself
Upon the continent, and overwhelms
Its cities—who forgets not, at the sight
Of these tremendous tokens of thy power,
His pride, and lays his strifes and follies by?
Oh, from these sterner aspects of thy face,
Spare me and mine, nor let us need the wrath
Of the mad unchained elements to teach
Who rules them. Be it ours to meditate,
In these calm shades, thy milder majesty,
And to the beautiful order of thy works,
Learn to conform the order of our lives."

Beef for Britons.

Sending beef to Britain is something on a par with sending coals to Newcastle, and yet America proposes to march upon John B. with Yankee beef and beat him in his own market. The subject is attracting more or less attention in England and France, as among ourselves. The mechanical apparatus consists of little more than a large packing box or storeroom, enclosed by an iron chest, through which pipes are passed, and a constant circulation of air forced by a small independent steam engine of about one-horse power. The air thus driven into the meat chest is immediately drawn out near the bottom, and returned to the refrigerator, being used over and over. The temperature of the entire body of air is evenly preserved at near thirty-six degrees, causing a very moderate consumption of ice after the first few hours. London papers recently noticed the sale of American beef at the Smithfield market at an average of sixpence per pound, or about twelve cents in American currency, and the account says it "sold rapidly." How beef can be sold at this price at a profit, after deducting costs of transportation across the Atlantic, our "middle men" can best explain. The fact shows clearly enough the advantage of buying from first hands. Beef treated after the manner described is said to suffer in no degree from impaired flavor. Perishable fruits are transferred with equal success. The indications are that hereafter, with refrigerator warehouses, refrigerator cars, and refrigerator steamships, the trade in perishable merchandise, such as fresh meats, game, fish and fruits, will steadily grow in importance, and these articles have a much wider distribution.

An Arab Belle.

BY J. J. WORTENDYKE.

Of the three ladies that formed the harem, the chief was Amsha, a lady celebrated in the song of every Arab of the desert for her beauty and noble blood. She was a daughter of Hassam, Sheikh of the Tai, a tribe tracing its origin from the remotest antiquity, and one of whose chiefs, Hatem, her ancestor, is a hero of Eastern romance. Sofuk had carried her away by force from her father, but had always treated her with respect. From her rank and beauty she had earned the title of "Queen of the Desert." Her form, traceable through the thin skirt she wore, like the other Arab women, was well-proportioned and graceful. She was tall in stature and fair in complexion. Her features were regular, and her eyes dark and brilliant. She had, undoubtedly, claims to more than ordinary beauty; to the Arabs she was more than perfection, for all the resources of their arts had been exhausted to complete what nature had begun. Her lips were dyed deep blue, her eyelids were continued in indigo until they were united over her nose, her cheeks and forehead were spotted with beauty marks, her eyelashes darkened by kohl; and on her legs and bosom could be seen the tattooed ends of flowers and fanciful ornaments, which were carried in festoons and network over her whole body. Hanging from each ear, and reaching to the waist, was an enormous ear-ring of gold, terminating in a tabut of the same material, carved and ornamented with the four turquoises. Her nose was adorned with a prodigious gold ring, set with jewels, of such ample dimensions that it covered the mouth, and was to be removed when the lady ate.

Ponderous rows of strung beads, Assyrian chymders, fragments of coral, agates and parti-colored stones hung down from her neck; loose silver rings encircled her wrists and ankles, making a loud jingling as she walked.

Over her blue skirt was thrown, when she issued from her tent, a coarse striped cloak and a common black handkerchief was tied over her head. Her menage combined, if the old song be true, the domestic and the queenly, and was carried on with a nice appreciation of economy.

The immense sheet of black goat hair canvas, which formed the tent, was supported by twelve or fourteen stout poles, and was completely open on one side.

Being entirely set apart for the women, it had no partitions, as in the tent of the common Arab, who is obliged to reserve a corner for the reception of his guests.

Between the centre poles were placed upright and close to one another, large camel or goat hair sacks filled with rice, corn, barley, coffee, and other household stuff, their mouths of course being upwards. Upon them were spread carpets and cushions, upon which Amsha reclined. Around her, squatted on the ground, were some fifty handmaidens tending the wide cauldron, baking bread on the iron plate, or shaking between them the skin suspended between three stakes, and filled with milk, to be thus churned into butter. It is the privilege of the head wife to prepare in his tent the dinners of the Sheikh's guests.

Calcium.

BY JAS. P. DUFFY.

This metal, which is yellowish-white, lustrous and ductile, may be produced by heating lime with either potassium or sodium. It is a constituent of several of the most important minerals, and forms nearly as much as one-sixteenth of the solid crust of the earth. The general properties of calcium are but little known, with the following exceptions, viz: It melts at a red heat, and in case oxygen be present, takes fire and burns with a very bright and dazzling light; it oxidizes quickly in moist air, decomposes water, and suffers no change in dry air at the ordinary temperature.

The well-known earth, *lime*, is an oxide of calcium, and may be obtained by heating chalk to redness in an open vessel. On the large scale, it is manufactured by burning chalk or limestone in kilns. Lime is used for a great variety of purposes—in mortar, with sand, after being slaked, during which process sufficient heat is set free to fire some wood. The value of lime in mortar consists in the fact that it gradually becomes a compact solid by the absorption of carbonic acid from the air.

It is used in the refining of sugar; as a flux in metallurgical operations; and in the manufacture of soda and potash, and ammonia-water and bleaching powders. Candle-makers use it for preparing lime-soap, and it is found in almost every vegetable in some form. In the process of tanning, it is used to remove hair from the skins; and in solution as lime-water, it is used to remove superfluous hair from the head and face.

The great disinfectant, *chloride of lime*, is prepared by passing chlorine gas over finely powdered slaked lime. This substance is largely manufactured for bleachers, who, by means of it, are enabled to do work in a few hours which would have taken weeks to perform before its discovery. The process of bleaching is as follows: To remove the grease, etc., the yarn is first boiled in lime and water, and then dipped in dilute sulphuric acid to dissolve out the lime usually present. It is then immersed in a warm solution of chloride of lime, and having been taken out and drained, it is dipped into a bath of acid and water; it is then washed with an abundance of water, from which it emerges perfectly white.

Chloride of calcium is used in laboratories for absorbing moisture, and is prepared by saturating hydro-chloric acid with lime, and fusing the result in a crucible.

Sulphate of oxide of calcium forms the well-known Plaster of Paris. It can be prepared by adding sulphuric acid to carbonate of lime, but on the large scale, it is produced by heating gypsum.

Some of the most important salts of calcium, such as bone phosphate, when treated chemically, form valuable manures. The bone-phosphate (which is produced by calcining bones) is immersed in sulphuric acid, when sulphate of lime is afforded. This valuable substance is called by farmers, superphosphate, and is highly prized.

Wolves in the Mountains.

Although Snow-shoe Thompson travelled through the wilds of the Sierras for twenty winters, he never in all that time met or saw a grizzly bear or a bear of any kind. Hundreds of times he saw their tracks in the snow and in the mud about springs and brooks. Sometimes their tracks had been so recently made that water from the oozy ground was running into and had not filled them. He was so close upon them at times that he imagined that their odor still lingered in the air. Often he found places where several had been travelling together. When he had a clear field he did not fear them, as he could easily run away from them on his snow-shoes.

"I never was frightened but once during all my travels in the mountains," said Snow-shoe Thompson: "that was in the winter of 1857. I was crossing Hope Valley, when I came to place where six great wolves—big-timber wolves—were at work digging up the carcass of some animal. They looked to have hair on them a foot long. They were great, gaunt, shaggy fellows. My course lay near them. I knew I must show a bold front. I might run away from a bear, but these were customers of a different kind. There was nothing of them but bones, sinews and hair, and they could skim over the snow like birds.

"As I approached they left the carcass and came out in single file a distance of about twenty-five yards toward my line of march. The leader of the pack then wheeled about and set down on his haunches. When the next came up he did the same, and so on till all were seated in a line. They acted just like trained soldiers. I pledge you my word I thought the devil was in them. There they sat, every nose turned toward me as I approached. Just when I was opposite them and but about twenty-five yards away, the leader threw back his head and began a howl. All the rest of the pack did the same. 'Ya-a-a-ho-o-oo! ya-a-a-ho-o-oo-oo!' cried all together. A more horrible sound I never heard. I thought it meant my death. The awful yell rang out across the silent valley, and was echoed by the hills—was re-echoed far away among the mountains. I felt my hair raise on my head, but I put on a bold front. I passed them as a general passes in front of the soldiers he is reviewing. I did not alter my gait, nor did I turn an inch to the right or left. I kept my course as though the wolves had not been there. They uttered but their first awful howl. When they saw that that did not make me run, they feared to come after me; so they let me pass, and when I was far away I saw them going back to the carcass."

Effect of Smoking Hashish.

It was in my own house, says a writer at Cairo, that I tested the virtues of the drug—on this occasion in company with an Englishman in the service of the Viceroy, and accustomed to such experiments. We sat on opposite sides of the dinner table in the evening, in a small room, the ceiling of which was lofty, though the apartment was long and narrow. Our nargheles were brought in; on the burning top of each was deposited a small cake of greenish paste of the hashish, which gave out a peculiar and pungent perfume distinct from the odor of tobacco. They smoke the narghele (or water pipe) by strong inhalation, drawing the smoke into the lungs by each effort. After the first few inhalations I experienced a sensation of constriction across the forehead, as though a cord had been tightly drawn around my head. Then I felt some disturbance or wavering of vision, as though the pupils of my eyes were dilating. Suddenly the constriction and the wavering of the vision ceased, and a sense of expansion and enlargement of all my powers, physical and mental, succeeded. Every sense, every nerve, every muscle seemed to be endowed with a new and more subtle life and power than before. My strength seemed to swell into that of a giant, and a sense of illimitable power and energy to possess my whole being. My companion, sitting on the opposite side of the table, receded from me until he seemed seated at the end of a long gallery, the walls of the room receding as he did; and when he spoke (or laughed, under the influence of the drug,) his voice came pealing on my ear like the crashing sound of thunder. Never before had I experienced any sensations at all similar, save in my vague recollection of the delirium of fever.

One peculiar idea was common to both states—the idea of duality—as though one person were watching the phenomenon in another, yet conscious of feeling them himself—a state equally common under hashish and febrile influence. So long as consciousness of personal identity and the consequent struggle against the intoxicating influence of the drug continued, the sensation was painful. But both myself and my companion soon soared out of this lower region into the higher one of hashishland, into the enchanted domain of the “*The Thousand and One Nights*,” which probably were wrought out under this inspiration. Unlike the frenzied and broken fragments of recollections evoked by any other form of intoxication, the hashish pictures paint themselves so vividly on the brain that even after awakening from its dreams sufficient traces of them still remain to be recalled at will.

Changes in Fashion.

It is amusing to notice some of the circumstances which have rapidly brought in fashions, and as speedily banished them. Sometimes a word, or a single act of a warrior has changed the fashion of a whole country. When Alexander the Great ordered his Macedonian soldiers to shave, lest their beards might become handles whereby their enemies might capture them, smooth chins became universal in Greece. Mausoleus introduced a new custom into Asia Minor, when he commanded the heads of the conquered Lycians to be shaven; for the poor fellows felt so uncomfortable and ridiculous, that they bribed the king's general to allow them to obtain wigs from Greece; and a peruke speedily became the height of Lycian fashion. Courtiers are always eager to imitate their sovereign; and sometimes majesty will even condescend to follow the fashion it has unwittingly introduced. When Louis XIV. was a little boy, he had such long beautiful curly hair, that all classes tried to imitate it by wigs and false curls; but when he grew up and became the “grand monarque,” he adopted the full-bottomed wig, in defiance of the canons of councils and the thunders of priests. All English gentlemen then wore perukes; though Charles II. forbade the members of the university of Cambridge to wear periwigs, smoke tobacco, or read their sermons.

The enthusiasm of a moment has not unfrequently introduced a fashion for life; and even sudden fear has rapidly turned its tide. At the beginning of the twelfth century, it was customary in England to wear very long hair; and a decree was passed in the council of Rouen against it. But example is more powerful than precept, especially in fashion. When Henry I. was in Normandy,

Bishop Serlo preached so eloquently against this custom, that, it is said, the king and his courtiers were moved to tears. The prelate immediately seized his opportunity and his scissors, and cropped the whole congregation; and a royal edict secured the fashion of “cropping” during Henry's lifetime. In Stephen's reign, however, long hair again appeared; though, for a short time, the previous fashion was revived in consequence of the dream of a young soldier, who was noted for the length and beauty of his hair. He dreamed one night that a person came behind him and strangled him with his own curls; and the dread of such a calamity was sufficiently powerful to cause all men throughout the nation to cut off their flowing ringlets.

Fashions which have been introduced to hide defects have frequently become exceedingly popular. The Effeminate, or dandies of the twelfth century wore shoes with immensely long pointed toes; and when the Earl of Anjou twisted his like rams' horns to conceal his deformed feet, the nobles eagerly adopted the fashion.

The ruff, too, was first worn by a lady to hide a wen on her neck. We are told that the sight of a falling apple suggested to Sir Isaac Newton the great law of the universe; and the appearance of a certain lady suggested the uniform of British seamen. The English navy was not distinguished from the army by any particular costume till the days of George II. In the year 1748, there arose much discussion respecting a naval uniform; and one day his majesty accidentally met the Duchess of Bedford on horseback, in a blue riding-habit trimmed with white. The king was so struck with the effect of these colors, that he ordered them to be adopted in the uniform for the navy; and blue and white continued to adorn the heroes of the deep until William IV. changed the facings to scarlet. An interesting volume might be written on the trivial circumstances which have introduced some of the most prevailing fashions.

Fashions have often been abandoned on account of circumstances not less striking than those which introduced them. The times of Elizabeth were characterized by enormous ruffs and fardingales. As the ladies then sighed, more than they do now, for clear-starchers to get up their ruffs and points, the queen brought over some Dutch women, who were quite *au fait* at their work; and one Mistress Dingham Varden Plasse made a large fortune by teaching the nobility, at five pounds each, how to starch ruffs; and also, for twenty shillings extra, “how to seethe,” says Stubbs, “the liquid matter in which the devil hath learned them to wash and dye their ruffs.” The bands and ruffs of the reign of James I. were stiffened with yellow starch, which was introduced in England by Mrs. Turner, a physician's widow; but when she was convicted of being an accessory in poisoning Sir Thomas Overbury, and went to the scaffold in a yellow ruff, the fashion of wearing them died with her who had given them their peculiar color.

A Happy Thought.

It was Lady Holland who, by the merest accident, introduced dahlias into England. “Having been much gratified somewhere in the South of Europe by her first acquaintance with Palestine soup, and, ascertaining that the main ingredient was the Jerusalem artichoke, Lady Holland procured what she supposed to be a root of it, and forwarded it (probably by a King's messenger) to her gardener at Holland House. When a beautiful flower came up instead of a succulent vegetable, she gazed on it with a feeling near akin to the fox-hunter who complained that the smell of the violets spoiled the scent. But the value of her acquisition began to break upon her when the London seedsmen, who came to look at it, offered thirty guineas for a root.” Another version is that a root was given to her at Valentia in 1804 by a celebrated botanist, who had just received it, an unknown rarity, from South America.

ORIGIN OF THE KISS.—It is to wine-drinking, says an examiner of musty records, that we owe the origin of the kiss. After Micennius caught his wife sucking his finest wines through the bung-hole of a barrel with a straw, the custom became general in Rome for the husbands to kiss the lips of their wives, that they might discover the quality of their good ladies' stolen libations.

☞ Frogs, toads and serpents never take any food but that which they are satisfied is alive.

Little Things.

Life is a collection of little things; happiness is not a huge package of merchandise that can be purchased in bulk at wholesale; it is rather a mosaic, formed of little gems, each insignificant in itself alone, but grouped, combined, it becomes attractive and satisfying. The beauty of home depends more on little bits of refined taste and skill, little artistic combinations, little attempts at neatness and order, than on grand achievements abroad, or large bank accounts at home. A little skill and taste in making brackets and shelves for corners, in collecting ferns or autumn leaves to adorn unpicturesque walls; moderate outlay in turning plain windows into conservatories of flowers; a few creeping vines to convert the blank, white farm house into the charming rustic home; these do more to attract the family about the hearth-stone than all the rhetoric, logic, and legislation combined. A pleasant smile, a kindly greeting, a considerate deed, an unselfish act, all trifles in themselves, yet aggregate a sum of human happiness and tranquility that a united family circle would not exchange for millionaires' wealth or princes' honors where the warm heart and gentle hand are absent. Trample not under foot the little pleasures of life, profusely scattered in every pathway, in the vain hunt for mountains of joy in the dim distance; tire not the eye in fruitless search for an unbounded horizon of great beauty when we overlook the sweet roses and fragrant flowers at our doorsteps. We are prone to gaze, work, and strain after something apparently far off, that is really very near to us if we could only realize it. Solid wealth is not the acquirement of a day or a year; it is a collection of little items of industry, frugality, and economy, and he is really rich who is content with little. Youth overlooks the present in reaching forward for great things to come, while old age, realizing its errors, gazes back on the past for its lost opportunities.

Little habits creep up apace, until from an occasional indulgence grows up a ruling power; little expenses, scarce noticed in the first instance, soon consume an alarming total; little matters, unnoticed, disregarded, and uncared for, finally confront us with an impassable barrier of accumulated and neglected duties and responsibilities. In these latter days of enforced economy, when so many of the brightest visions have faded away into grim realities, it behoves us to award to little things the earnest attention which their importance demands, remembering always that real happiness is the aggregate of many little things.

Detractors.

Did you ever have the misfortune to be associated with a person who was by profession a flaw-hunter—one who made it a principle to prove that nothing here was perfect, and who lived up to this principle to the fullest extent. Take them to hear a celebrated lecturer, and they will come home full of supercilious contempt for a mispronunciation of a word, a slight lisp in the speech, an ungraceful gesture, or if nothing else serves, a bad fit of his garments. The whole body of rich thought and noble sentiment had entirely escaped their observation.

No institution could be founded on so perfect a plan that they could not pick flaws with its management in some respect. And these small defects more than counter-balance all the good accomplished. Lucky it is for them that there are spots in the sun. If it was without blemish they might find "their occupation gone."

How industrious they go about to spread the "evil report" they take up about their neighbor. If people exercised half the industry in prosecuting the better business of saying and doing kind things for one's neighbor, how many wounded hearts would be healed, and how many sad ones lifted up. Well did Hazlett say of the class, "littleness is their element, and they give a character of meanness to whatever they touch."

How much evil such people work as they journey through life. How many stabs at the heart, for one item, they will have to answer for. How much they have added to the sum of human misery. How many detractions they have set afloat to work mischief for others wherever they could. How many people have lost situations on which almost life itself depended, merely from their malicious whispers. It would be well to remember that though the Lord does not always mete out the reward of such evil works at once, yet always "in the end he pays."

Hanging out the Sign.

A young lady who was greatly bedecked and befrizzled, asked a good Quaker who was calmly surveying this wonderful work of art, "if he thought there was any harm in wearing such things?"

"Oh no," he replied; "if thy head is full of such things, it is perfectly appropriate to hang out the sign."

The sign hung out is very apt to represent the kind of goods stored away inside. Many a young girl has quite as good material outside of her head as she has inside. That hat so wonderfully got up, with its fluffings of feathers, and draggled bird, which looks much like a poor canary which the cat has had before the lady got it, has cost hours of severe study, and no end of discussion among a half a score of dear friends of like mind and taste. After it was finally settled upon, and the orders given, they were very likely countermanded a time or two, and the finished products was by no means satisfactory until various re-arrangements were made.

Those exquisite snarls upon the top of the forehead, have been the theme of much thought and patient labor; yes, and of heroic endurance if the truth must be told. No one need say that the age of martyrs has died out. Every young lady of fashion knows better than that.

When a spring or summer outfit is finally completed, the time, and thought, and labor expended upon it are enough to have enabled the lady to master some work on natural science, or to have made herself familiar with some improving department of *belles-lettres*.

All honor to Mrs. Hayes, who sets such a noble example to the women of America to-day, in her sensible, suitable attire. Placed on the topmost wave of our republican society, she yet maintains the noble dignity of a true woman who dares to think and act for herself instead of being the slave of Fashion. Her rich black hair has, in all those years of dishevelment and frizzes, been worn smooth and well forward on her face, a "finger puff" behind the ear being its sole adornment. Her winning manners and bright intelligent conversation need no outside trappings to set them off. Her very appearance tells of a well furnished head and a kind womanly heart, and such has been her record in all the spheres in which she has moved. It is a good thing to have such a woman at the dawn of this second hundred years of our history, and it will be a good omen for the future if they may be led to imitate her virtues.

A Contrast.

Both Luther and Calvin brought the individual into immediate relation with God: but Calvin, under a more stern and militant form of doctrine, lifted the individual above Pope and prelate, and priest and presbyter; above Catholic Church and National Church, and General Synod; above indulgences, remissions and absolutions from fellow-mortals, and brought him into the immediate dependence on God, whose eternal irreversible choice is made by himself alone, not arbitrarily, but according to his own highest wisdom and justice. Luther spared the altar, and hesitated to deny totally the real presence; Calvin, with superior dialects, accepted as a commemoration and a seal the rite which the Catholics revered as a sacrifice. Luther favored magnificence in public worship, as an aid to devotion; Calvin, the guide of republics, avoided in their churches all appeals to the senses, as a peril to pure religion. Luther condemned the Roman Church for its immorality; Calvin for its idolatry. Luther exposed the folly of superstition, ridiculed the hair shirt and the scourge, the purchased indulgence, and dearly-bought worthless masses for the dead; Calvin shrunk from their criminality with impatient horror. Luther permitted the cross and the taper, pictures and images, as things of indifference; Calvin demanded a spiritual worship in its utmost purity.

Luther left the organization of the Church to princes and governments; Calvin reformed doctrine, ritual and practice; and by establishing ruling elders in each church and an elective synod, he secured to his polity a representative character, which combined authority with popular rights. Both Luther and Calvin insisted that, for each one, there is and can be no other priest than himself; and, as a consequence, both agreed in the parity of the clergy. Both were of one mind that, should pious laymen choose one of their number to be their minister, the man so chosen would be as truly a priest as if all the bishops in the world had consecrated him.



THE WRECK.

BY ROSE STANDISH.

The angry sea with foam ran high,
Wild raved the wind—fierce stung the blast—
The screaming sea-gulls circled by,
And settled 'bove each creaking mast.

An awful hush was on each lip,
A deathly terror in each eye,
That watched on shore the fated ship,
Careening, rolling helplessly.

Oh, life was sweet and life was dear!
What soul could brave so mad a sea?
What boat could ride the billows drear?
The great ship drifted fast and free.

In the tight clutches of the gale
Her sturdy timbers snapped like reeds;
A tattered rag was every sail—
No soul could answer to her needs.

* * * * *

The morrow's sun rose warm, rose clear;
With clouds of fire the East was sown;
But not a single trace was there
Of the ship that to death went down!

Artificial Incubation and Rearing of Chickens.

BY A. W. I.

Various methods of hatching eggs by means of artificial heat have been long in use. The oldest method known, one in which the heat of ovens is the agent employed, has been in use among the Chinese, the Arabians and the Egyptians from time immemorial. With the Arabs, the heat of fermenting horse dung has also been made use of for an unknown number of years. This process was made the subject of an English patent about a century ago, and a small book descriptive of the process was published at the time. This process, much improved, has again been revived in this country, and recently patented.

The Chinese method was, and still is, to place the eggs bedded in sand, in baskets or wooden boxes, in low sheds of straw plastered with clay, and having floors of tile, beneath which a small fire is kept burning. The heat is regulated by the sensations of the attendants only, and it is therefore not unusual for many eggs to be lost by being either over or underdone in the process. After a few days the eggs are examined and the unfertile ones are picked out and rejected. When the period of incubation is nearly ended, the eggs are removed from the sand and placed upon shelves covered with cotton, but without fire, till the young chicks appear.

The Egyptian method is to lay the eggs upon mats covered with bran in an oven about four feet high, and the heat is distributed by means of flues above the ovens, in the floor of a vaulted chamber, which has an opening leading into the oven beneath; another in the vaulted roof for ventilation, and a door in front for ingress and egress. The eggs are examined after six days by being held to the light, when those that are unfertilized are easily picked out and rejected. Travelers who have visited these Egyptian ovens speak very forcibly of the unsavory atmosphere of the apartments in which the attendants live, eat and sleep. The undesirable nature of such an apartment can easily be imagined.

In the fifteenth and sixteenth centuries, two of the French emperors undertook poultry raising on the Egyptian plan, and further, Francis I. bought and paid for 1,300 eggs; but how they turned out history does not state. After this a French nobleman tried an improved method, more nearly approaching the natural, inasmuch as he used feathers as the bedding material, with lamps as the heating agent. This was recorded as a decided failure. Following this came the efforts of Reaumur, the inventor of the thermometer which bears his name, and a scientific man. His plan was to place the eggs in drawers arranged over a baker's oven; but afterward stoves were used for heating.

Although Reaumur invented a thermometer, yet he used the very rude test of the melting of a mixture of butter with half its bulk of lard, kept in a small bottle, to determine the degree of heat to be maintained. After this the philosophers took up the business and discussed and experimented over it till hot water was substituted for dry heat, and the air surrounding the eggs was kept moist by the evaporation of water supplied in pans. Reaumur's efforts, however, seemed to have almost exhausted the subject, for he used fermenting manure and tan bark, taught capons to brood upon eggs and nurse the chicks; also to cluck like hens and scratch. He also invented an artificial mother of fur.

Then came Mr. Cawtels, who was very successful as an exhibitor no longer than thirty years ago. He used a sort of spring bed of canvass for the eggs to lie on, and the heat from a current of warm water flowing over glass immediately above the eggs. He it was who discovered that the proper heat to hatch eggs was near 106 degrees.

Of late years there have been many attempts to perfect a method of artificial incubation, and get rid of the hen, which is too fussy and slow for our ideas in this age of steam. Now that poultry brings so high a price, and young chickens for broilers bring more than full grown fowls, it is desirable to have some way of improving on the slow and unprofitable means provided by nature. The only one which does its duty in a fully acceptable manner, of which we know, is that of Prof. Corbett, of Hicksville, N. Y., in which the heat-producing quality of horse manures, as first tried by Reaumur, is made the agent. Prof. Corbett has been very successful in using his method, and his experiences have been gathered in a nicely bound book called the "Poultry Yard and Market," which we will furnish to any one who may desire it. This little work explains the system, and cannot fail to interest those who keep poultry for pleasure, as well as those who make it a business.

The first postal system of the Colonies was organized by four printers, Franklin, Holt, Goddard and Hazzard. Congress appointed Franklin the first postmaster-general, with a salary of \$1,000, residence in Philadelphia, and instructions to establish posts from Falmouth, New England, to Savannah, Ga., with cross posts, and rates 20 per cent. below the old Parliamentary charges.

Retiring from Business.

A man will seldom do it if he knows himself. To be able to retire signifies that he is able to do business, no drone or dead-beat, but a man of faculties, who has always been girded tight with responsibilities. In some weary mood, under the depression of a worn-out feeling, he thinks of slipping off the yoke and turning himself out to grass. It is a delusion. What is he going to do with himself, with his habits, with his faculties? Does he want to make an end of himself before his time? Is he ready to drop out of the world? This is the result of retiring from his business. The question will soon prick him uneasily, both from within and without, what business he has to be in the world, and a very uncanny question it is. He feels "as one who treads alone some banquet hall deserted." It is good for a man to bear the yoke in his youth," and to keep young just as long as he can. It is a question of resources, but not of external resources. They must be of "the life which consisteth not in the abundance of the things which he possesseth." Let a man retire from the business that has kept him alert and stirred up his gifts, and put his internal resources at usury, and he becomes like scrapper that was once bright machinery, rusting out in the weedy corner of a back yard, or like one of the details in Hogarth's picture of "Finis."

A leader in the dry goods trade of Boston had, by dint of hard and systematic work and keen ability, amassed a fortune. Visiting a rural cousin and a country parson, who flourished under the spreading elms of one of the loveliest of our Connecticut Valley villages, he was so charmed, soothed, refreshed by its leafy, rustic beauty, that he vowed an escape forever from the racket and hurry and din of the pavements, and the crowding brain-work of the counting-room, to retire into a fine old mansion that stood opposite the parsonage in the aristocratic and smiling beauty of lawn and avenue and groves and garden, to invite his soul to steal away from cumbering cares, and attach a finis to his earthly troubles.

But going back to Boston with his lovely day-dream in his fancy, he must first consult his business friend, Abbott Lawrence. "Don't do it," was the sage advice. "It may be well enough for awhile, so long as you can be well occupied with your repairs and improvements; but after that, what then? What are you going to do with yourself? Where are your resources? They are not internal, apart from your business activities. You won't settle down to authorship. You and I never enjoyed a liberal education. We are dependent on external resources, the surrounding circumstances to call out our mental activities. Let us stick to our lasts."

Dr. John Todd was constrained by his good sense at the age of seventy to make a martyr of himself in retiring from his pastorate. It was a hard and noble struggle against the strongest impulses and inwrought inclination of his fresh and buoyant nature. "What shall I do?" cried he. "If I stop preaching it will be the end of me." The internal resources of his vigorous mind rose up in protest; his whole being revolted against retiring from the business of his life. It was the healthy action of a manly soul, and that which best tones up and preserves the physical powers, and keeps the *mens sana in sano corpore*. Recreation—in order to recreate. Play with work—and above all the refreshment of good company and social cheer—but let us work while the day last.

The Test of Time.

The best critic, the most impartial judge, the final tester, and the most ruthless and merciless destroyer, is Time. Nothing lives long unless it embodies or contains real merit and value. All poor things inevitably die in the long run.

The gauntlet which Time throws down for each and every human thought, word and deed before it can be said to be permanently established in history and in the world's remembrance, and before it can have any active and abiding influence in determining future thought is a fearful one. Ranged on one side are all the natural forces and processes of decay, dissolution and disintegration which are inherent in all things and actively at work, and on the other, stand all the prejudices, harsh judgments and fierce accusations of contemporaneous rivals, critics and enemies. And anything which survives the thrusts of these two foes, must have in it a portion of indestructible worth.

We speak in metaphor of the "wrecks of time;" but this

metaphor rests upon a basis of most literal fact. The pathway of centuries through the domain of history is a real path. Passing along this track, one can see on either hand the ruins of projects, plans, hopes, schemes, and enterprises of various kinds, thickly strewn about as leaves in autumn woods. They gave good promise at the outset, they started well, but the "victorious tooth of time" tore them into fragments, and they disappeared from the active arena of life like the "unsubstantial pageant of a dream."

Still, this test of time is not an absolutely impartial one after all. For time destroys some valuable things in its ceaseless flow, just as the current of a river sweeps away houses, barns, and cattle on its banks, as well as all rubbish and floating debris. If any human enterprise serves well its day and generation and is calculated only for that, of course it will perish with the using and pass away. But this fact does not prove the intrinsic worthlessness of the plan, or project, or enterprise, by no means; it only proves that it was intended simply to serve a temporary purpose. But this temporary purpose may be in every respect a good one, and the flow of time sweeps it away only after it has accomplished its normal, legitimate work, and properly fulfilled its real mission.

On the other hand, time allows some things to exist which are far from being perfect or pure. These are generally of a mixed character; they embody something good and a portion also of enduring evil. But they continue because they are so firmly fastened in the world's soil. They have struck their roots deeply into the rocky substratum of human nature and human wants, and entwined their fibres closely around the massive columns of permanent human interests, and there they cling and hang and live in spite of winds and waves, rough usage and harsh treatment; just as some gnarled and unsightly stump will get wedged in among the rocks of a stream and there lay in spite of flood or current.

This knowledge of time's testing power influences human thought and judgment very largely. It makes the majority of people slow to reject anything which bears the seal and stamp of age, slow to adopt anything until it has been proven and tried by the lapse of years. While there are some who give no heed to the judgments of time, but fall in with whatever accords with their thought, or suits their fancy, and reject whatever is contrary to them without regard to either age or newness, yet the race, as a whole, are so constituted as to deeply reverence whatever has stood the test of time, and be suspicious of whatever is untried or novel. And this is well. There are a great many existing evils which, if left alone, will either heal or destroy; and these we must avoid or patiently endure. There are also many other existing things which we may not like, perhaps, but which will doubtless live long after we ourselves are gone; to oppose these, unnecessarily and rashly, will be to butt our heads in vain against a rock, resulting only in self-injury or destruction.

The Power of a Great Example.

There is nothing that will let the light into the soul like personal influence; nothing that can lift one up out of the darkness, and lead one into the divine and quickening light, and aptize one into the spirit of faith, hope, love, and charity, like the magic power of a great example; nothing that can inspire, exalt and purify, like the magnetic rays of healing and helping that beam out of the eyes of noble men and women. If your life has been deep and broad in its experience when you have seen lives that were better than yours; lives whose pure light shone upon you from a serener height than you could reach, and touched you and warmed you through and through; just as the drooping flowers, some chilly morning, have looked up through the thick fogs and caught a glimpse of the bright sun, which scatters the mists and opens he glad blossoms to the warm, life-giving light. Whose life is not, sometimes, wrapped around with fogs? Who has not looked up from his little life-work and seen no cheering sun above him—nothing but a heavy, leaden sky hanging over? And then, perhaps, you have almost doubted the sun itself—doubted goodness and doubted God—until you have seen the clouds break away, the fogs lift, and doubt vanish before the beautiful radiance of some shining example. I tell you that I believe, more and more, that what the world needs to reform and redeem it is, not so much a sound theology, or a profound philosophy, but holier, purer, diviner lives—lives that shall be the light of men.

Out of Work.

BY CORA BELLE.

Five clerks had been discharged from the establishment of Sterling & Co., and walked away to their homes in various moods. The way of two chanced to run in the same direction for awhile, and their conversation naturally turned on the mischance that had befallen them.

"It is not so bad for you, Wells," said Harry, "as for poor Williams. You have only yourself and your wife to look out for, and he has three children beside. I don't know what the poor fellow will do. Just two can manage to pinch along some how; but with three children added on, I should think he would give up in despair."

"I don't know that my case is so very much better. Two people must eat and keep a roof over their heads. I have only just been able to live on my salary as it was, and board is somewhat behind hand now. How we are to get on is more than I see. Agnes will not be very cheerful at the news, I can tell you; and it is no great source of comfort to me to know that some other poor fellow is worse off." So saying, he bid his companion a moody good night, while Harry walked briskly home to his boarding place. His effects were soon packed up, his bill settled, and the evening train found him on the wing to his dear old country home, where an aged pair would receive him with open arms, and where he could pull off his gloves and rake hay again, as he did in his boyhood. Seed-time and harvest, plowing and reaping, go on all the same, though banks break and firms fail. Harry was not at all dispirited at the prospect of a few months' vacation, and sincerely wished all his friends had as good a home to run down to.

Wells and his wife sat gloomily beside the table, under the pleasant drop-light. Agnes had laid aside the new dress she was trimming so elaborately. She had no more heart for work.

"What are we to do, Jesse?" she asked almost sharply, "we cannot board on here without an income, that is certain."

"That is very true, Agnes."

"Well, then you'll have to look out for something else to do. I can't go down to a little fourth story back room, and do my own cooking over a coal oil stove."

"We may be glad to, yet."

"Don't say glad, Jesse, for there's no truth in it. We should be anything but glad. I don't like coming down in that style, or any other. I didn't marry you with any such expectations. By-the-way, the landlady was hinting around about our last month's board to day."

"The money ought to have gone for it instead of that dress," and he glanced half angrily at the tumbled fabric which lay over a chair.

"How should I know you were going to be discharged? I needed the dress now, and you could as well pay the board out of the next month's wages."

"I wish you could trade it now with Mrs. Miller for her daughter Jane. You are about her size."

"I'd like to see her get it," said Agnes, her eyes flashing, "after all the work I have spent on it," and she snatched up the work, and began folding it up. "The only dress, too, that I have had this season. I certainly meant to get a gray and white silk, pin stripe, as soon as I had this finished; but I suppose you will say now that you are too poor to buy it."

"If we don't have to pawn the clothes to buy bread before the season is out, I shall be thankful," said Jesse, lighting his cigar.

"If you are not the most aggravating man that ever lived," said Agnes, bursting into a flood of tears. And here we will leave them to comfort one another as best they can, while we peep into Albert Williams' snug apartments. The sad news has been told, and the first surprise and regret has been expressed.

"But we cannot say it was wholly unexpected," said Mrs. Williams, as she set on the nicely cooked supper and lifted the crowing baby into his high chair. "We shall tide over these times somehow, Albert, never fear. Now we see what a good thing it is to have the rent paid quarterly in advance. Two months of this quarter yet before any more rent is due; that will give us time to look around and see what we can do. I can get shop work to do, I think, that will bring in a little sum every

week, and we shall none of us grumble if we do come down to a little plainer food, will we dears?" and she looked around on the group of happy faces that were making a comfortable supper, despite the hard times.

"We will study over the economies a little closer, that is all. I heard a Southern clergyman, who lived through the war on corn meal principally, say, that when you come to the bare necessities of life a family can live on very little. That basin of pork and beans, for instance, which you all relish so well, cost just ten cents. With five cents' worth of bread we could all five make a satisfying meal of it. That would be just three cents apiece. So you see, with the little sum we have laid by in the savings bank, we need not actually starve these six months."

"What a hand you are at contriving," said Albert more cheerfully. "If they would put you at the head of the nation's finances, there would be a change in the times, I know."

"I find my own little kingdom quite as much as I can manage," said his wife, who was not as "progressive" as some.

"If you took in sewing, mother, I could take care of the baby," said Florence. "That would be helping some, wouldn't it?"

"Yes, indeed, dear; you are a great help to mother every day now, in just that way."

"What can I do to help?" asked Bertie, anxious not to be left out of the family plans.

"By being a good boy," said mother; "that helps mother most of all; then you can save steps about the house; be ready to run up or down stairs for mother, which will be a saving of strength as well as time. Indeed, Albert, we can never feel very poor while we have the dear children so well and so helpful."

"You all cheer me up," said the father, "and I feel hopeful that work of some sort can be found, if it is not just the sort I have been doing. I will help load boats, if I can get it to do, rather than sit down in idleness."

With such a spirit and determination, Mr. Williams did not remain many days without some employment. He concluded that "half a loaf was better than no bread," and was willing to work hard for small wages, rather than see his dear ones stinted for food. It was the dear children and the cheerful wife that inspired him to do his utmost in the way of looking for work, and so he was able to tide over the hard times without any actual suffering.

The moral of my little story is self-evident.

Russian Ladies.

The characteristics of the Russian type of feminine beauty are an extreme fairness of complexion, grayish blue eyes, blonde or chestnut hair and a certain *embonpoint* arising from the lack of exercise and the life in-doors, which is compelled by a winter lasting seven or eight months. They suggest the idea of Odalisques, whom the Genius of the North keeps confined in the tropical atmosphere of a hothouse. They have complexions of cold cream and snow, with tints of the heart of a camelia—like those over-veiled women of the seraglio, whose skin the sunlight has not touched. By this extreme fairness, their delicate features are rendered even more delicate; and the softened outlines form faces of Hyperborean sweetness and Polar grace. The Russian women, in society, seem to make less display than the men, as the uniforms and court-dress of the latter glitter with gold lace and embroidery, and with jeweled decorations. Yet the simple robes of the ladies are composed of the costliest fabrics, fastened with the rarest gems; and their dazzling skins, and flashing diamonds, and gleaming pearls, and flowing draperies, match in effect the heavier splendor of the masculine attire. Their "simplicity pays homage to the Empress, who prefers elegance to ostentation; but you may be sure Mammon loses nothing by it. Like their sex everywhere, the know how to make gauze more costly than gold."

A live toad, in a torpid state, was recently dug out of "hard pan," at Rutland, Vt., some fifteen feet below the surface, where he must have reposed for centuries. On being laid upon the grass he soon revived, and hopped off to give the worms and bugs of the nineteenth century a specimen of antediluvian skill in "snapping them up."

An Aimless Life.

Final success, in any department of labor, is attained only by earnest effort. Rich harvests do not spring from uncultivated soil, neither is intellectual strength or moral worth developed by chance. Beauty and symmetry of character have never resulted from thoughtless or careless lives, nor has the world's onward progress been hastened by accident. True, Bacon happened, during the course of his chemical experiments, to mix the right substances in the right proportion to produce gunpowder; and Newton's attention chanced to be arrested by the falling apple; but the true origin of grand results which followed these events must be sought elsewhere than in the laboratory, where the astonished sorcerer of the thirteenth century beheld the chemical action which was to revolutionize the act of war, or in the garden where Newton sat when his mind started on that voyage of discovery from which it returned to produce a far grander revolution in the scientific world, and finally to bring order out of existing chaos. Long before, in the forming period of such life, the mind had been commissioned to go through all the avenues of the universe in search of truth, and its rich gleanings was but the natural fruit of its lofty aim. If it were possible to analyze "the grand results of time," and trace each element of progress back through the ages to its source in some human mind, we might then be able to form an adequate conception of the value to the world of high purposes wrought out in earnest, well directed lives. So, too, if we could trace the evil influences at work in society back to their first cause, we should find it far oftener in lack of any purpose whatever than in a positive disposition to evil.

A few aimless lives run their sluggish course and disappear, leaving behind them no trace. By far, the greater number illustrate the truth of the lines we all learned when we were children, and which it is well for us to remember in our ripper years, "For Satan finds some mischief still for idle hands to do."

Lost Knowledge.

Much of the knowledge that passes away has little relation to this aspect of the question. What a store of learning passes out of the reach of ordinary men when a great scholar dies, or a skillful doctor, or a subtle, hard-headed lawyer. And it is learning of a kind that they cannot leave behind them, for the gatherings of a lifetime cannot be passed on in the form in which they exist in the mind's experience. The old laborer, who has spent his life's strength on one farm, cannot transfer his intimate acquaintance with the soil, and with every hedge and ditch and drain which have been his world. Every person whose business makes him acquainted with the characters of men, through contact with their good and bad qualities, carries away with him much important knowledge not transferable. How many rogues must rejoice when the local detective quits this lower scene? But, beside this, there are labors and natural products of which the knowledge has died out or is dying out as we write. We all know of lost arts, the secret of which expired with the possessor, but how long will there exist the man who has inhaled the full and exquisite sweetness of the cabbage rose? We do not believe that the flavor of the golden pippin, so dear to our forefathers, lasts in living memory, and so of other delights. How few can recall the exhilaration of the old-fashioned country dance; how few remain who saw Mrs. Siddons act, or heard Tom Moore sing, or Sydney Smith joke, or Coleridge talk? Still, while the few live, we who hear them know something; but the soul of their memories is fast passing out of the world. And to descend to more familiar examples. When a good cook dies—one invested with a genius in intimate correspondence with all the materials of her art, who can foresee the influence of a condiment or an essence upon all with which it comes in contact, who understands combinations and prognosticates results hidden from the vulgar—what knowledge flies out with her, knowledge incommunicable. Throughout all this range of losses we are lamenting over the inevitable. The world has not room for all knowledge. In every active state of society new knowledge must supersede the old. If all the people who had nothing else to do employed their leisure in reproducing their past, they would not find hearers. Old-world histories owe much of their attractiveness to their rarity, and each age has worthies of its own who must not be neglected for those who preceded them.

The Habit of Observation.

It seems singular that some men pass through life without observing things which come before their eyes almost daily. An intelligent farmer once told me that he would not recognize any of the horses belonging to his neighbors, excepting those noticeable from some peculiarity of color. A Chicago merchant, who daily drove his own horse eight or ten miles, told us he had never noticed any difference in the movement of horses; did not notice the difference between trotting and pacing. A college president is said to have made the question, "in which way do the seeds lie in an apple?" a test of the habit of observation among his students. Our tests with this question would indicate that more than one-half of the average men and woman either don't know, or will answer incorrectly. We once received a well-written essay on the value of observing closely, yet there was not a capital letter or a punctuation mark in the half dozen pages. Many such instances could be given, were it necessary.

This matter is not one of slight importance. The carefully observant man will see things which will be of pecuniary importance to him, while his ill-trained neighbor may lose by not seeing. The farmer with habits of observation will notice slight symptoms of illness in his animals or plants; will readily see the effect of this or that practice; will much more quickly discover countless little things which, if neglected, may result in serious loss.

As in the case of habits generally, much can be done in childhood, and it certainly should be the duty of parents and other teachers to help children learn to observe carefully, quickly, accurately. It is told by some one that in his childhood he practiced running past a shop window and then stopping to describe as many articles as he could recall, and in this way he acquired wonderful quickness of observation. There are hosts of points to which a farmer's boy should have his attention called at an early age. Suggestions as to the mode of growth of plants, the form of a leaf, growth of a fruit, or the pointing out of peculiarities of different classes of animals, may do him great good in developing this habit, and also have a marked effect in interesting him in his calling.

This habit of observation should not be confined to the things we see alone, but should extend to the things we hear, and those we read as well. In this latter matter, there is great lack. Many read to little profit because they have not trained themselves to observe carefully.

The Wife of Socrates.

Poor Xantippe has been handed down to the world as a synonym of all warplish and unwomanly traits. Every tergumant of these latter days has been compared to her, and young men have had a fling at her when they "spoke their pieces" on Commencement and Junior Exhibition days ever "since Time was young."

Now I believe the poor woman has been much belied. If she had not enough to provoke her no woman ever had. What do you suppose her grand, philosophic husband allowed for house-keeping expenses for the year? The vast sum of seventy-five dollars. Then Socrates was by no means the noble dignified scholar you have pictured him in your school-boy imaginations. He would have been counted a sorry tramp in our streets. He wore an old dirty gown summer and winter, and that was his entire wardrobe. He did not look even as imposing as Mark Twain's Sandwich Islanders, whose raiment, he says, consists of "a night-shirt and a gun."

Worse than that he was shiftless. He scorned to work for a living. He was content with being accounted a man of great wisdom on subjects that were of no earthly importance to anybody.

Depend upon it, the world has done rather more than justice by these old fogys, and rather too little to their poor wives who had to "put up" with the pinchings of poverty, and with these old philosophers too. Before you are so hard on Mrs. Xantippe again, it would be well just to place yourself in her shoes for a minute, (that is if she had any), and see if you would not have scolded some.

There are some philosophical men, and some not philosophical, who seem to imitate Socrates "shiftlessness" if they do not share in his "talents," whatever they were. Let us pity their poor wives, and look with much charity on any asperities of temper which hard lives may tend to cultivate.



SAILING TOGETHER.

I.

In the sunlight, the glad sunlight,
You and I, love, sailed together,
When the waters mirrored clearly
Golden sky and purple heather;
And my oars beat back the wavelets
To the tune you sang to me;
And the world was full of sunshine,
And of joy, for you and me.

II.

In the moonlight, life's pale moonlight,
We are gliding o'er the lake,
Where the mountains cast their shadows
Athwart our silvery wake.
But still my oars dip lightly
To the low song sung to me;
And the moonbeams shimmer brightly
On thy head, love, and on me.

Recent Experiments with Diamonds.

Heated in contact with air, diamonds were not only blackened but reduced in weight, showing positive combustion. In oxygen they burned with a vivid incandescence at a temperature below white heat. In a crucible which allowed the combustion to be observed through a sheet of mica, the burning diamond was seen to be surrounded by a white flame, less bright without and tinged with violet on the outer edge. Pure diamonds burned tranquilly, retaining their sharp edges when so reduced as to be visible with difficulty. Impure specimens snapped and flew. The effect of heat on colored diamonds is more pronounced, with the exception, perhaps, of gray and yellow gems, which appear to resist such action, the same as the colorless ones. Green diamonds are variously affected. One of a dirty green was changed to a pale yellow, with a slight increase of its transparency; but its brightness remained the same. Another so green as to be almost black, likewise retained its brilliancy, but gained in clearness while its color was changed to violet. A light green gem lost its color entirely, but was otherwise unaffected. Brown diamonds lost most of their color, showing under the microscope a limpid field, scattered with black spots. A diamond almost colorless assumed, under the influence of heat (out of contact with air), a deep rose color, which it retained for some time when kept in the dark. In the light its color faded, but always returned again with heating. A naturally rose-colored diamond reversed the phenomena, losing its hue with heating, and afterward gradually regaining it.

Ammonia.

BY JAS. P. DUFFY.

Ammonia is a compound of three parts of hydrogen to one of nitrogen. It is produced in the form of *ammoniacal gas*, and is of great importance in many respects.

It may be produced by the following method:—Mix some sal ammoniac with an equal weight of cold, freshly-slaked lime, and heat the whole in the retort or flask which has been previously described in these pages. In a short time the gas will be given off, and may be detected by dipping a glass rod into hydrochloric acid, and holding the same over the escaping gas, when dense white fumes will be given off. In order to secure the gas in a pure state, the mouth of the retort must be closed with a good cork provided with a bent glass tube. The tube must enter a three-necked bottle half filled with water. The ammoniacal gas thus produced has a strong, pungent smell, which characterizes it, and is rapidly absorbed by water, in which form it is generally sold under the name of liquor ammonia or spirits of hartshorn, the latter term evidently originating from the fact that the horns of deer were formerly distilled to obtain the ammonia contained therein, which was, and is now generally regarded as a panacea for headaches. The distillation of animal refuse and bones was formerly the principal source of ammonia. A large quantity of ammonia is afforded at gas works in the distillation of coal, this forming the great bulk of the ammonium compounds used in the arts; although for some especial purposes it may be and is obtained by heating horse-hair and other animal substances.

Ammonia enters largely in the composition of animal substances, and is, therefore, continually given off in stables and other places where animal matter is putrefying, as may be proved by using the test above described for the gas.

Experiment:—Put a piece of sodium into a little mercury, and pour thereon some sal ammoniac. The alloy thus formed will be greatly increased in bulk and yet remain solid, thus causing the belief that ammonia is a metal. In every case it acts in the same manner as a metal, but all attempts to obtain it in that form have hitherto been fruitless.

Arizona.

CAPTAIN CARNES.

A large proportion of the land of Arizona is a desert of white sand and hard clay; but the valleys are abundantly fertile and, with irrigation, yield bountiful crops.

The climate is hot and dry, and must have been so for ages, as in nearly all the valleys the old ditches of the ancient Aztecs are visible. The northern part of the territory is cool and fine, owing to its elevation above the sea; but the southern portion is exposed to great heat—the mercury ranging from 112 to 118 in the shade for days together. Here no snow is ever seen, and ice rarely forms even in winter. Yet with all this heat there is no more healthful and agreeable climate in the world. The population is largely Mexican, but a tidal wave of American emigration is sweeping up even here, and Speculation, with its ferret eyes, is peering into out-of-the-way places all over the territory, and ere long the reckless, indolent Mexican will flee before the dash and perseverance of the oncoming Yankee.

Arizona has wonderful ruins of cities and towns, and the valleys are written all over with the hieroglyphics of previous Aztec civilization. There are reservoirs, fortifications, old mines, sun-burned bricks, and rude stone implements on every side.

The Indians hereabouts are ingenious. They make pottery for carrying water and for cooking purposes, and their baskets are very wonderful pieces of art, as they will hold water even, after being soaked awhile. These savages exhibit quite a degree of civilization.

The trees of this region are the mesquite, paloverde, cottonwood, pine, walnut, ash and oak. The variety of cacti is great, with giant species growing to the height of fifty feet, in form of huge, green fluted columns, armed with formidable thorns.

The houses are built mostly of *adobe*, or sun-dried brick, and are cool and comfortable.

It is a region replete with interesting history for the scholar or antiquarian, and will yield a rich harvest to scientific researches.



THE FIRST NEST.

HOMES WITHOUT HANDS.

Which builds the nest,
In the bright Spring weather,
This bird or that bird?
They build it together.

There is scarcely anything in nature more wonderful than the nest of a bird—of those kinds, at least, that form an elaborate one; and most elaborate, indeed, very many of them are.

What, again, is more curious than the way in which so artistic and, as one may say, carelessly-made nest as that of the rook keeps its place on the top of the tallest tree, even in the most exposed places, against the blast of the highest wind?

Then, what a variety of situations nests are built in, as well as how various in themselves; some on the ground, others in rocks; some in hedges, others in trees, and others against the walls of houses or buildings; some in holes or banks; and others again, hung from the branches or boughs of trees. Some make use of the old or deserted nests of other kinds, while many display the greatest perseverance and ingenuity in the construction of their own.

How clearly is the hand of the Almighty Creator seen in the vast variety of the "fowls of the air," as well as in the exquisite workmanship of many of them! Then how curious are the divers instincts implanted in each and all of these, as shown in the forms of so many different kinds of their dwellings. Each little builder has had its own lesson given it, and, once learned from the first, it never forgets it in the smallest particular, nor ever changes from what it has been set by it to do. Man cannot say as much of any one of his works; these "houses without hands" so ingeniously constructed forbid him to boast of any of his own.

And yet, again, how striking is the adaptation of the color of the nests of many birds to that of the tree or wall or such-like they are built on. It is as if it had so painted it on purpose to conceal it from detection; and in numberless instances the purpose it gained, every variety of material being used for the structure, from the very mud of the high-road to the moss or lichen which finds its place on the bough of the loftiest tree. Why, too, should one bird use clay in the construction of its nest, and another feathers, leaves, grass, hair, wool, or a thousand other materials?

Once more: How each keeps to its own little home, and never intrudes, unbidden, into that of its neighbor, excepting only those few of the cuckoo kind—the exception to the rule, and which, as such, only prove it. They all keep to themselves and their own families, from which their "sober wishes never learn to stray"—a "happy family" in every case; all of "one mind in a house."

Surely the hand of the great and good Creator is seen in all these things?

And what love the parent birds show to their young!—so strong that they will often risk their own lives by capture on the nest, rather than desert them on the approach of danger. How cruel a thing to molest either the one or the other in the face of such an appeal as this, or take advantage of such trust!

Some birds use their nests to sleep in, such as the long-tailed titmouse, swallow, marten, and wren; and comfortable they look and are.

"Within a thick and spreading hawthorn-bush,
That overhung a mole-hill large and round,
I heard, from morn to morn, a merry thrush
Sing hymns of rapture, while I drank the sound;
With joy: and oft, an unintruding guest,
I watched her secret toils from day to day,
How true she warped the moss to form her nest."

And modeled it within with wood and clay.
And, by-and-bye, like heath-bells gilt with dew,
There lay her shining eggs, as bright as flowers
Ink-spotted over; shells of green and blue.
And there I witnessed, in the summer hours,
A brood of Nature's minstrels chirp and fly,
Glad as the sunshine and the laughing sky."

How exquisitely beautiful are the eggs of birds, and how great the variety, each of its own kind, and each with some peculiar elegance of its own! No wonder that children look at them with delight, for do not even men do so too?—those at least, who have the happiness of having a taste for the pleasures of a country life, and an eye for natural beauties, and are thus able to do without the excitement of mere wordly pleasure. But let children be taught to admire them in their native place, and leave them to those to whom they belong. Let this lesson be taught them while they are young, that it may be one that they will not forget afterwards.

May not man learn many a lesson from these handi-works of the Almighty? nay, has not our Lord Himself bid us to do this very thing, and, "consider the fowls of the air," and even point to their nests, or perhaps, rather, their roosting-places, where they retire to rest, when He "had not where to lay his head!" What confidence, if not alarmed or persecuted, the birds show in man, building their nests close to, or even on or against their houses!—what patience, too, they exhibit in the building of them; what devoted care of their young; what fond affection one for another!

Of all living things a bird seems the blithest and happiest. Whether circling in airy flight overhead, or cleaving the air with swift wing, or poising on the topmost twig of yonder tree, trilling its clear song out on the fresh morning air, it seems the very embodiment of joy and freedom—freedom from care as well as restraint. Perpetual youth seems to be its birthright. The frisking lamb and the playful kitten soon cease their frolics. Growing sober with their years, they seem to forget they ever had a youth. But age never stiffens bird joints—never changes the glad, joyous song into a melancholy quaver—at least we never know it if it does. I mean the free-born bird. To the poor prisoner caged and dependent on human care comes much of the trouble and many of the infirmities that are inevitably linked with human companionship.

Yet bird life—free bird life—has its trials, as I have found, by watching the nest of robins in the beautiful apple tree that shades our door. Into the cosiest fork of this tree, just before our chamber window, came a pair of robins one sunny day. Intent on finishing their spring work betimes, and getting to housekeeping before the warm weather began, they never waited for Nature to build them a roof, but while the tree was yet bare and leafless they chose their place and went to work. Ah, busy little workers! It was a cheery sight—their patience and perseverance, gathering their straws one by one, rejecting this and choosing that, laying them so evenly with their bills, and flying away so blithely. The round walls grew apace—firmly fastened to the tree and woven so strongly; and then with what skill they put in the soft lining of hair! They worked and sang, and sang and worked, until the last hair had been laid smoothly in—and then the little worker whirled and whirled to give the finishing touch, and with evident satisfaction pronounced it done and well done.

Each day brought to the nest a beautiful blue egg, until there were four. Now the mother's heart was where her treasures were, and patiently, day after day, she stayed amid storm and sunshine all the same. But Nature kindly gathered around her all the tender green leaves that fluttered in the spring sunshine, sheltering her from the heat and rain, and the wind rocked the branches, swaying both robin and nest to and fro as gently as a mother rocks her cradled child.

The days grew into weeks, and there was a stir of life beneath her wings. Each little shell was broken, and four little unfledged things, that seemed all mouths, made housekeeping much more of a labor than housebuilding had been.

Now, there is nothing so homely, I think, as a little bird just out of its shell. Who would ever believe this naked, awkward, uncouth thing could change so soon into such an airy, graceful little warbler? Did you ever wonder at the difference between fowls that walk and fowls that fly? The chicken comes into life full-fledged, ready to commence basi-

ness at once, while the birds feather slowly and keep their mothers busy from morning until nightfall filling those great mouths that are always crying, "Give! give!" But the parent birds are seeing their happiest time now, as they will find to their cost a few days hence. Take what comfort you may, Robin Redbreast, with your little nestlings folded safe under your wings. Chirp to them softly—sing to them cheerily—feed them bountifully. When once they have left the nest they will come back no more to its sheltering care. That dear little home, so cunningly fashioned and so carefully watched, will soon have finished its mission, and the little, scattered nestlings never again be folded under loving wing.

And I dread the day as much as you, when, balancing on the edge of the nest, with a little flutter of the wings and a little ambitious desire to try them, the young adventurer either tottles and falls outright, or with wings half spread makes a descent half way between a flight and a fall and comes back no more!

Ah! you would have waited longer, little one, if you knew the enemies that are lying in wait for you. We do, and have watched the nest wishing we could put off the evil day. For we cannot help feeling that they are in some sense committed to our care, and we run down the stairs with lightning speed and catch it just as the dog reaches it and is about to crush it with the weight of his paw.

There!—a boy who has heard the outcry has been before-hand and caught another. We make him give back the little, trembling thing, and taking them into the garden watch them all day; and between the boys, the dog and the cat, our eyes have no rest. The cat!—will she have no mercy?—no sympathy with the fluttering, anxious, distracted mother, who now feels for the first time the trouble of motherhood? She has her own three kittens to guard, and with ears erect and eyes wide open starts at the slightest noise lest some harm come to her own darlings. Will she have the heart to touch that young bird while the mother is hovering so anxiously about it? It is a pretty sight to watch her as she teaches it to fly—first running swiftly along, then stopping, she stretches up as straight and stiff as a grenadier, all the while giving that low call; the little, toddling thing scarcely reaches her side before she is off again, till finally, coaxing it into a flight of a foot or more, she rewards it by dropping a squirming worm into its open mouth—repeating again and again both the lesson and reward.

Well for robin red-breast that her four nestlings do not leave their home together. The worry and trouble would soon be the death of her. How anxiously both birds fly hither and thither, calling, coaxing, watching, and in agony of terror if any new danger threatens.

One night, just at sunset, we were startled by such a screaming of birds as I never heard before. Down the garden walk I ran swiftly; over the fence flew Harry, but not soon enough to save one of our own little robins from the clutches of a neighbor's cat. Not only the parent birds themselves, but four or five other robins had rushed to the rescue, and I could have cried over that poor mother's frantic grief, as, regardless of all the danger for herself, she circled around the cat and, alighting upon its head, tried, with beating wings and bill, to make it give her darling up. Ah! the mother love is strong in bird and beast as well as in human homes.

These little homes, built without hand, are all around us. Early in the spring we can all see the busy little creatures carry whisks of straw, tugging at long pieces of string, flying into trees, nooks and corners, with soft feathers. Is not the instinct implanted in the bird very wonderful?

"In the pleasant spring-time weather,
Rosy worms and purple eyes;
When the little birds together,
Sit and sing among the leaves.
Then it seems as if the shadows,
With their interlacing boughs,
Had been hung above the meadows,
For the plighting of the vows!

"In the lighter, warmer weather,
When the music softly rests,
And they go to work together
For the building of their nests;
Then the branches for a wonder,
Seem uplifted everywhere;
To be props and pillars under
Little houses in the air!

"But when we see the meeting
Of the lives that are to run;
Hence, forward to the beating
Of two hearts that are as one.
When we hear the holy taking,
Of the vows that cannot break,
Then it seems as if the making
Of the world was for their sake."

Many a child goes astray, not because there is a want of prayer or virtue at home, but simply because there is a lack of sunshine. A child need smiles as much as flowers and sunbeams.

THE WANDERING JEW.

Of the many myths which diverge from every little incident of our Saviour's career, the legend of Ahasuerus, the Wandering Jew, is certainly the most striking and widely distributed. According to the old ballad in Percy's collection:

He hath passed through many a foreign place—
Arabia, Egypt, Africa,
Greece, Syria, and great Thrace,
And throughout all Hungaria.

All the nation of the Seven Champions have it in some shape or other, and it is amusing to note the way in which the story adapts itself to the exigencies of time and place. In Germany, where he appeared A. D., 1547, he was a kind of polyglot errand, battling professors and divines with the accumulated learning of fifteen centuries. In Paris, he heralded the advent of Cagliostro and Mesmer, cured diseases, and astounded the *salons* by his prodigious stories. He remembered seeing Nero standing on a hill to enjoy the flames of his capitol, and was a particular crony of Mahomet's father at Ormus.

It was here, too, he anticipated the coming scepticism, by declaring from personal experience, that all history was a tissue of lies. In Italy, the myth has become interwoven with the national art hero. When he came to Venice, he brought with him a fine cabinet of choice pictures, including his own portrait taken by Titian, taken some two centuries before. In England, John Bull has endowed him with the commercial spirit of his stationery brethren, and, to complete his certificate of naturalization, made him always thirsty. But the Jew of Quarter Sessions Reports, who is always getting into scrapes, is not the Jew of the rural popular legends, in which he is invariably represented as a purely benevolent being, whose crime has been long expiated by his cruel punishment, and therefore entitled to the help of every good Christian. When on his weary way to Golgotha, Christ fainting, and overcome under the burden of the cross, asked him, as he was standing at his door, for a cup of water to cool his parched throat, he spurned the supplication, and bade him on the faster.

"I go," said the Saviour, "but thou shalt thirst and tarry till I come." And ever since then, by day and night through the long centuries, he has been doomed to wander about the earth, ever craving for water, and ever expecting the day of judgment which shall end his toils.

Sometimes during the cold winter nights, the lonely cottager will be awoke by a plaintive demand for "water, good Christian! water, for the love of God!" and if he looks out into the moonlight, he will see a venerable old man in antique raiment, with gray-flowing beard and a tall staff, who beseeches his charity with the most earnest gesture. Woe to the churl who refuses him water or shelter. If on the contrary, you treat him well, and refrain from indelicate inquiries respecting his age—on which point he is very touchy—his visit is sure to bring good luck. Perhaps years afterwards, when you are on your death-bed, he may happen to be passing; and if he *should*, you are safe, for three knocks with his staff will make you hale, and he never forgets any kindness. Many stories are current of his wonderful cures.

From the year 1818 (perhaps earlier,) to about 1830, a handsomely-featured Jew, in semi-eastern costume, fair-haired, bare-headed, his eye intently fixed on a little ancient book he held in both hands, might be seen gliding through the streets of London, but was never seen to issue from or to enter a house, or pause upon his way. He was popularly known as "The Wandering Jew," but there was something so dignified and anxious in his look, that he was never known to suffer the slightest molestation. Young and old looked silently on him as he passed, and shook their heads pitifully as when he had gone by.

He disappeared; was seen again in London some ten years later, still young, fair-haired, bare-headed, his eyes fixed intently on his book, his feet going steadily forward as he went straight on, and men again whispered as he passed through the streets, "The Wandering Jew!" There were many who believed that he was the very man to whom had been uttered the awful words:

"Tarry thou till I come!"

ACROSS THE WILD WESTERN WILDERNESS;

OR,

A Trip to San Francisco.

A PEN PICTURE OF PICTURESQUE NATURE, AND LIFE
AS IT IS—SAVAGE AND CIVILIZED.

BY JASPER T. JENNINGS.

No. 1.—Introductory.—The growth of the American Nation.—Sharppers in city life.—The broken pane.—The country greenhorn and the sharpers.—New York.—Jersey City.—Underway.

No country in the world ever rose so rapidly in power and greatness as the United States. The history of England dates far back to the days of the Cæsars, cotemporary with the history of ancient Rome; and when Jesus Christ was preaching the doctrine of the true Christian religion on earth the island of Great Britain was known to the surrounding world. France, and Germany, Spain, and Russia have been known perhaps even longer than England. Four hundred years ago all America was a wild unknown wilderness. With the exception of the minor discoveries of some Icelandic adventurers, which amounted to nothing, not a single white man had ever set foot on the Western Continent. The sufferings and privations of the early settlers, and their struggles against the Indians and British oppressors need not be recounted here. They were long and sanguinary, and culminated in the Revolutionary War—in the "time that tried men's souls"—in the age of patriotism, when pure minded men with determined spirits dared declare this nation should be free.

Think of the work our worthy forefathers have done. Not only did they contend with the prowling wolf and bear, perfidious savages and treacherous foes, but they leveled the mighty forest and made the gloomy wilderness to blossom like the rose. All honor to the hardy pioneers; would that we had more like them now. Through their sweat, and toil, and blood, they laid the foundation for our glorious nation; and for all the blessings we enjoy we are indebted to the noble work of that old band of heroes, that dared all the dangers of frontier life, and with minds uncorrupted and untarnished with the lusts and greed of worldly gain, assembled in the council halls of the nation, and with wisdom and prudence organized the best government the world ever knew.

One hundred years ago this very year the old state house bell in Philadelphia pealed forth the glad news that the Declaration of Independence had been proclaimed to the world and the new nation born. Then there were but thirteen feeble states, with less than three millions of inhabitants. To-day there are thirty-six large and powerful states with a population of over forty-five millions. Then the railway was unknown, and the steam engine had scarcely found a place in even the imaginative speculation of man. Now the steam whistle proclaims the working power that is driving the great factories and workshops all over the settled portion of our country, and the smoke of the iron horse is seen moving through a thousand valleys, as it rushes along with its stupendous load, with the speed of the wind and the strength of Hercules, from village to village, from city to city, and over rivers, and ravines, and mountain barriers, from ocean to ocean. The great Centennial Exhibition at Philadelphia befittingly represents the genius, industry and progress of the American nation of a century's growth. It will demonstrate the fact that a free people are capable of governing themselves; and that the young republic already takes its place among the front ranks of the nations of the world.

And yet our country is not half settled, and thousands upon thousands of square miles are almost unknown. Within the last few years the scientific explorations of the far west have developed a world of wonder and beauty, hitherto hidden from the knowledge of civilized man. The picturesque and sublime scenery of the Yellowstone Region of the Rocky Mountains, the Yosemite Valley, and the canons of the Colorado, must certainly be classed among the grandest scenery of the world; and yet hundreds are going to Europe every year to view the natural beauties of Switzerland and Italy, and to climb the lofty Alpine peaks, to look upon the wild and enchanting scenery of Nature, without dreaming that they are leaving behind them a country filled by Creation's hand with a profusion of the most magnificent scenery to be met with in the realms of the terrestrial globe.

Perhaps there is no better way of acquiring true knowledge than by traveling. Yet traveling alone is of but very little real practical benefit to any one. It must be coupled with study and reflection. Now there are two kinds of travelers—those who travel for pleasure and those who travel for profit. The former merely gratify the eye, letting time slip along as gaily and unheeded as possible, with no thought of anything but the present. The latter travels to understand and learn. He makes a note of everything he sees worth preserving, to strengthen his memory, and that those who come after him may be benefited by his observations.

No one should ever think of undertaking a journey for the purpose of "sight seeing" without first informing himself concerning what he will be likely to see. Others have been there before, and they have taken down height, and breadth, and situation, and appearance, and cost, and history. You can

obtain the result of their observations for a trifle, and stamp vividly in your mind and imagination a picture probably approaching very near correct. Then you can go forward, feasting the mind and the eye understandingly, correcting the errors of former travelers, and if any new facts can be discovered add new pages to the world's literature.

And now my young friends let us make the Centennial Tour of this new Western World together. Let us view our country and its resources—the noble work of man for the last hundred years, and the primitive scenery of Nature in its wildness and beauty.

But a word before we start. We are to meet all phases of humanity. Be careful how you make friends with strangers. The cars and cities are filled with blacklegs and swindlers. They will seek to fleece us if they can. In New York city, the place we will select for our starting point, there are hundreds of them. They hang around the newly-arrived emigrants, and pretend to be very friendly, offering to go with them to places they wish to find, when they often conduct them to the vilest dens in the city. Ere many hours they are kicked out, with no money, and perhaps the next morning finds them beggars in the world and the friendly stranger gone. Look out for mock auctions where watches are sold cheap. They have a hundred different tricks to play upon you, and if you have anything to do with them you will in all probability be the loser. Watches of splendid appearance are often struck off for a few dollars, and the unsuspecting purchaser thinks nothing in handing it back for a moment that the seller may find a fitting key to go with it. But, ah! in that moment the works are changed, and it is handed back a worthless imitation.

Lotteries are established in many places, and you are assured that you have a grand chance to draw the tempting prize. Invest in these and depend upon it you will come away so much worse off than when you entered. Sometimes the cry is raised: "Pickpockets around—look out for your pocket-books!" The honest countryman instinctively places his hand over his money to assure himself that it is there; not thinking, perhaps, that he is assuring others that it is there also. It is all the sharpers want. They have found out their object, and they have already marked their victim's money for their own. He soon finds himself elbowing his way through a crowd, and unknown to him, a hand is placed upon the side of his pocket, with a knife keener than a razor, and so exceedingly small that it may revolve in the top of a large finger ring. A moment later his pocket is ripped open; his wallet falls into a greedy villain's hand, who slips hurriedly away to divide its contents with his companions.

Peddlers stand upon the street corners urging you to purchase goods at a quarter of their real value. Remember it is the sight of your purse they are after and not the sale of their goods. If your pocket-book appears lean and seedy, with only a few shillings therein, you will probably be comparatively safe, and be urged no more to buy. But if you have a considerable sum of money with you and they once get their eye upon it, they will work hard to get it.

A number of years ago, an awkward-appearing gentleman was walking along the side pavement of Boston with a large umbrella in his hand. Turning suddenly about, his umbrella, as if by accident, struck against a pane of glass and broke it. The proprietor of the building, who was a merchant, came forward and demanded a dollar for the damage. Many apologies were made and the careless gentleman handed him a ten dollar bill, saying it was the smallest change he had. The shopkeeper handed him back nine dollars, and he went on his way rejoicing. A few hours afterwards the humble merchant discovered that the bill was counterfeit—that he had been the victim of a designing villain—and that he had lost a pane of glass and nine dollars in cash.

Pocket-book snatching is another feature of rascality sometimes practiced upon strangers to city life. A good story is told which is said to have taken place in one of our large cities but a short time since. A young man fresh from the country farm had made his appearance in the city for the first time. His appearance was decidedly green and awkward, and crime-stained villains, thinking him a seelhorn, gathered about him eager to rifle his pockets. The sequel proved, however, that he was not so green as they had supposed. He had heard of pocket-book snatchers, and he had read about all the tricks and crimes practised by the evil disposed in the great city. He had prepared himself to meet their knavery, and he believed he should succeed. He had provided himself with two old well-worn wallets, looking exactly alike, and one he had filled with strips of brown wrapping paper, while the other contained his money. Stopping at a respectable store he purchased one or two trifling articles, and as he took out his well-filled pocket-book to pay for them he noticed that two or three suspicious looking individuals, who had been apparently dogging his steps for some time, slyly winked at each other, as much as to say, "The game is ours, and a fine bone to pick." Presently one of them pulled out a ten dollar note and kindly asked the other if he could give him two fives for it. The other examined his money and politely told him it was impossible, as he had not the change. Our young countryman turned to depart; not doubting but that the two gentlemen would follow him. His surmise was correct. Hardly had he stepped outside the door when the change seeker stepped up to him and said, "My friend, perhaps you could give me small bills for a ten?" Our countryman took the offered note in one hand, and with the other carelessly drew forth the false pocket-book. In an instant it was snatched from his hand and the villain dashed

around the corner of the block and disappeared in a moment, leaving the countryman with the ten dollar note in his hand. "Well," said he, "I've heard that when you laugh best who laugh last. Anyway, I'll bet you'll find them you open that old pocket-book that brown paper is at a premium, and you've paid pretty dear for the whistle; but I shan't find fault if you don't," and he stalked away.

That time the countryman was too sharp for the sharpers. Such, however, is rarely the case, and those who travel among them need to be on their guard. Be careful how you show your money, and how you enter into intimate conversation with those you don't know. Treat *all*, however, with civility and respect; but be not too free to inform them of your business and destination. In a word—*mind your own business*. Make this your rule, and my word for it you can travel the world over with little danger of having your pockets picked.

We might spend a day profitably viewing New York before we start on our long journey; but perhaps it is well known to many, and besides we have not the time. Quite likely you are more anxious to view the rolling prairies, the herds of buffalo, the grizzly bear, the snow-capped Rocky Mountains, and the wild red men of the far west. From reading this mere glimpse of some of the dark phases of city life, the reader must not infer that there are no good morals there. Magnificent churches point their lofty spires heavenward, and benevolent societies, and noble public libraries, the grand civilizers of humanity, attest the good work that is being done. Our American cities are nothing near as bad as those of Europe and the East. Could the reader behold the vile dens of degradation and infamy in London and Paris—the two acknowledged leading cities of the world—he would shudder at the dark deeds committed, and the blood would run cold in his veins. The traveler's life is not always among pleasant scenes: he must expect to see misery, vice and crime as well as pleasure, peace and plenty.

New York, the metropolis of America, compares favorably with any sea-port of its size in the world. As on our way to the ferry, after having purchased our tickets for San Francisco at the company's office, we pass down broad avenues lined by marble fronts and massive piles of elegant masonry, we can hardly realize that it is yet so young. A thousand years ago London and Paris stood where they now stand—cities of no mean proportions. A little over two hundred and fifty years ago, where New York now stands the Indian built his wigwam, and launched his little birchen canoe, and led his dusky Indian bride among the graceful willows and trailing vines that lined its flowery banks. In her tiny willow basket, the Indian maiden carried the squirrel and fish the hunter caught, and no king was ever happier on his throne than were those sun-browned children of the forest.

Manhattan was first seen by the whites in 1609. Henry Hudson, the bold discoverer, seeing the broad river rolling down from among the blue hills of the north, entered it and sailed far up among the red men, who were seen every day along its banks. In 1615 the first trading house was built. Soon afterwards a number of adventurers came over, and several log houses were built on the south-western point of the island. At one time the whole island was purchased for twenty-four dollars. In 1656, when the streets were first laid out, it contained 120 houses and a thousand inhabitants, who carried on a considerable trade with the Indians, purchasing venison, elk, bear, raccoon and beaver skins, etc., paying only trifles for them and disposing of them at enormous profits. Still but few lived solely as now by the fruits of speculation. Women wore dresses of brown home-made tow cloth, or plain calico, and were not afraid to soil their dainty fingers in the wash tub, or at the loom. Fashions were little looked after; but apparel was made neat, and durable, and clean; and beyond this there was nothing more. The city prospered and grew rich, and now it numbers more than a million souls—a vast hive of human industry. A thousand ships stand in its secure harbor, and the flags of all nations unfurled over the sea of shipping declare the immense amount of business done. But here we are at the ferry, and the time for starting is at hand. In a few moments we are set down in Jersey City; an important suburb of New York, with about 150,000 inhabitants, and the greatest railway depot on the American continent. Nearly all the produce of the western world destined for New York centers here, and engine rooms and freight houses are immense. The ringing of bells, the clang of a thousand steam hammers, the shrill whistles of a hundred locomotives moving here and there, the constant thunder of heavy trains, and moving columns of dark smoke, proclaim the busy work of man. Had we the time we might ascend to the heights and look upon the lovely bay and harbor, filled with shipping, and the great city itself, with its glittering spires and busy population, in one grand panoramic view; but we will not trouble the reader longer with the description. Entering the superb palace car of the Erie railway we are hurried away by the dashing iron steed, and our pleasant view of New York and the broad waters of the Atlantic closes.

No. 2.—The New York and Erie Railway—The Valley of The Neversink—Port Jervis—Carr's Rock—Up the Delaware—Gulf Summit—Cascade Bridge.

The New York and Erie Railroad is one of the pioneer railways of America; and at the time of its construction it was the greatest work ever undertaken by civilized man. The Great Wall of China, the Roman Coliseum, the Hanging Gardens of

Babylon, Solomon's Temple, and the Pyramids of Egypt were all mighty works, and wonders in themselves; but as far as the public good was concerned, they must forever sink into mere insignificance when compared with the modern railway.

When the Erie Company was being organized, and the first surveys being made through the then wild wilderness regions of southern New York, people laughed at what they deemed the worse than foolish attempt, to span the whole State with an iron railway 460 miles in length, from the waters of Lake Erie to the tide of the broad Atlantic. Whenever we hear it hinted, as we sometimes do, that the ocean may be crossed, and a rapid action, by means of a vast air ship, its advocates are looked upon in about the same manner as were the first managers of the Erie railway. The minds of the people are not ripe for such inventions; and they look upon the vast magnitude of the undertaking, without taking into consideration the genius and power that resides in man. They forget that this is a world of progress, and man knows not what he can do until he has tried. Man's works, with faith believing, can and has removed mountains.

The Erie Railway Company was incorporated on the 24th of April, 1832. The next year a million of dollars was subscribed to the stock, and Benjamin Wright conducted a survey of the whole route. In 1836 the route was resurveyed and active work commenced; but to level the rugged hills and cut through the rocky mountain barriers, and span the rivers and deep ravines with bridges, and airy viaducts, required an immense amount of money; and in 1843 the company had become so deeply involved in debt that its affairs were placed in the hands of assignees. The State of New York, however, came to their aid, and the work was pushed rapidly forward to completion.

On the 14th of May, 1851, the stupendous work was finished. The roar of cannon awoke the echoes of the hills and forests all along the southern counties of the State. Amid the universal rejoicing, the President of the United States, with Webster and other distinguished personages, entered the gorgeously decorated cars, on the Hudson, and were swiftly carried to the shores of Lake Erie. Nothing had hitherto been constructed equal to this; and America felt justly proud of her noble sons. Connections and extensions were made with other roads, and ere long it became the great leading thoroughfare between the East and the West. Its cost, together with its equipment, amounted to over thirty-three millions of dollars; and the number of men required to repair engines and cars was nearly 700. As the beautiful regions of the West became thickly settled, the business of the road increased rapidly; a double track was laid, and thousands found employment along the route. Over 75,000 tons of iron rails were laid in the track, and the aggregate length of bridging was over 25,000 feet.

Having given a hasty glance at the history of this early railway enterprise, we are ready to proceed with our journey.

Passing Boiling Spring Station, the Passaic Bridge, and Huiylers, we reach Paterson, one of the foremost cities of New Jersey, twelve miles from New York. Extensive machine shops are located here, where many of the finest locomotives in the country have been made. Its large cotton and silk factories give constant employment to many hundred persons. Passing by several stations situated in quiet farming regions, we come to a more rugged country, where steep hills arise on every hand and threaten to cut off our further progress; but the road turns this way and that, and winding around their bases, forms a crooked passage-way over which the long train like some wounded snake draws itself slowly on.

Thirty-one miles in New Jersey we cross the line and enter the State of New York at Suffern's Station. The scenery at once becomes more grand and picturesque, and as we dash into the jaws of the Ramapo Gap, we are reminded that this romantic spot is replete with historical interest. Washington was here in the eventful Revolutionary period, and where the pass is the most formidable, he prepared to meet his British foes; but learning the impregnability of his position, they never came. The remains of the ancient works are even yet visible. The celebrated Torn Mountain, which Washington often ascended to observe the movements of the enemy, is seen in the immediate vicinity. Swiftly we dash along through the beautiful Ramapo Valley, where the picturesque scenery of Nature changes at every turn, and the loud roar of an approaching train echoes like the jarring thunder among the rocky hills. Rich beds of iron ore are found here, and iron manufacture is carried on to a considerable extent. A little further on is the ruins of the old Augusta Iron Works, where in former days the great chain that was stretched across the Hudson to keep back the hostile English vessels, was forged. Through a deep rocky cut, and over the Ramapo, and ere long the valley widens and the hills appear more susceptible of cultivation.

When the road was being built much of it was through the wilderness, and the little hamlets that appear along the route have arisen from the fruits of the giant enterprise. Entering Orange County, we find ourselves in the leading dairy region of the Empire State. The land is generally very stony, but springy, and rich, and pasture grows thick, rank, and luxuriant. The more important stations are Chester, Goshen, and Middletown. Arriving at Otisville, seventy-five miles from New York, we have before us the Shavangunk mountain ridge, reaching far out on either hand, as if to dispute our further progress. Upward winds the track at the rate of forty feet to the mile, and when near the top we enter a rock cutting fifty feet in depth and nearly half a mile in length. Having reached the summit we descend by a gentle slope along the side of the

mountain, where the view is constantly changing from bold and rugged to picturesque and lovely, and *vice versa*. Below us is the quiet and beautiful valley of the Neversink. On emerging from the last dark pass and swinging around a curved embankment fifty feet high and 2,500 feet in length, we suddenly have the whole spread out like a map before us. Neat white farm residences along the yellow dusty road, with pretty yards surrounded by plain picket fences, and containing lofty old English poplars and Balm of Gilead trees, while creepers and woodbines and morning glories trail upward over the doors and windows, with bunches of rose bushes and lilacs in the corners, and blushing peonies along the walk leading out to the rustic gate, upon which the roguish youngsters are swinging, while beyond, away along the highway, the clatter of mowing machines resound, and the ring of scythes being sharpened by the busy group of farmers, as the sweet-scented clover and tall timothy falls before them. Below them the quiet stream with its deep places for trout, without a ruffle, smooth and glassy like a polished mirror, reflecting to perfection the clear blue sky, with an occasional white fleecy cloud, and the bunches of willows and beech that line its banks, while within it stand the herd of cows, with the cool water up around their sides, chewing their cud in contentment and happiness. Such are the beauties of rural scenery; a theme for the poet, and a never dying subject for the painter. Taken altogether it form a picture once seen never to be forgotten.

A short distance further, across the Neversink bridge and the smiling valley, and we stop at Port Jervis, eighty-eight miles from New York, and the terminus of the eastern division of the road. Here is a maze of switches, or turnouts, and locomotives are constantly moving to and fro, making up trains to be sent onward. The company's works are somewhat extensive, and the thick black smoke of the moving engines and clatter of heavy trains, fill the air with a constant din.

We now enter the Delaware division; and the Delaware is to be our companion for many miles. The road is now more level, but the scenery is extremely picturesque and ever changing. The heaviest work of the road lies in the Delaware division; and we are soon to pass over some of the boldest and most imposing scenery to be met with this side of the high Rockies. Crossing over the Delaware and Hudson Canal, and beyond, the Delaware river itself by a substantial bridge 800 feet long and costing \$75,000, we pass out of Orange County, and over into Pennsylvania, to wind upward along the narrow valley. Gradually the view becomes more wild and rugged, and ere long we find ourselves passing along the brink of a sheer precipice of one hundred feet above the river, while the rocks upon the other side have been blasted and cut away to the depth of 115 feet to form a pathway for the track. Along this great gallery, overhanging the murmuring water far down below, the train dashes with undiminished speed; and as we wind around the curve, and the car rises on one side and leans over towards the yawning abyss, we can hardly keep back a slight feeling of uneasiness, especially when we reflect upon our probable destiny should the train in its rapid flight happen to leap from the track. In the three miles of the great Shohola section \$300,000 were expended, and one of its sustaining walls contains 432,000 cubic feet of stone.

Carr's Rock, sixteen miles from Port Jervis, was the scene of a fearful calamity. In the early morning of the 15th of April, 1893, as a heavy passenger train was dashing towards New York with two hundred persons on board, a defective rail suddenly snapped asunder and four of the rear cars were pitched headlong down the high embankment upon the frightful rocks and crags below. An awful scene followed. The cars were smashed, and wood, iron, splinters, and human beings hurled in all directions. Thirty persons were killed outright, and many were severely maimed and mangled, and the murderous rocks were dyed with blood. The debris took fire, and the shrieks and groans of the dying sufferers was heartrending. Assistance from Port Jervis was quickly procured, and when the dead bodies were removed and the living kindly cared for.

At Lackawaxen, 111 miles from New York, the canal passes over the river by a great aqueduct, and passing up the valley of the Lackawaxen in the direction of the Honesdale and Carbondale coalfields, we see it no more. Two miles beyond Mast Hope we recross the Delaware by a bridge 580 feet in length, and again enter the State of New York. Passing by the beautiful stations of Narrowsburgh and Cohocton, and many more less important ones, situated among rugged hills and beautiful valleys, we become conscious that we are beholding some of the most changing and picturesque scenes to be met with in southern New York. Many of the high rocky hills that form the river's bank have been swept by the forest fires, no doubt often kindled by the sparks from the passing locomotives, and their summits being denuded of their timber have been covered with a dense growth of briars, brakes, and scrub oaks, where rattlesnakes abound by thousands. In the summer these barren hills are often visited for sassafras and whortleberries.

Beyond Equinunk we pass Stockport, Cheocton, Hancock, Hales' Eddy, and ultimately arrive at Deposit, 177 miles from New York, where we again cross the Delaware by a strong iron bridge, and bidding adieu to the stream we have followed so long, set our face to the high mountain barrier which we must climb before we can view the beautiful Susquehanna. In the passage of this great ride the mighty works of the Erie railway are to be seen; and no wonder the first surveyors paused here in the woods, and felt ready to shake their heads in doubt and discouragement as they reflected on the obstacles to be overcome and the probable cost of the stupendous undertaking.

Winding upward, with a grade fifty-eight feet to the mile, the puffing steed moves slowly on. Eight miles of the toilsome ascent and we come to the great rock-cutting at Gulf Summit, 200 feet in depth, where the final barrier was by human labor riven in twain. Here is a rare field for the geologist, where he can examine the different rock formations to his satisfaction. Huge icicles in the winter hang from the splintered rocks, far up the river sides, and the keen cold air draws through the pass, piercing the travelers with its congealing blast. To make this prodigious artificial pass through the summit of the watershed between the Delaware and Susquehanna Rivers, the last scattering spurs of the Allegheny chain, required an immense amount of labor and \$200,000 in money.

We are now 1366 feet above the level of the sea. Hurrying through the rocky cut we commence the western descent, with a grade of sixty feet to the mile, and after four miles run, in some places so extremely crooked that long trains are often passing around two curves at the same time, we come to the wild ravine where once stood the celebrated Cascade Bridge. Standing upon the brink of the frightful chasm, we behold away below, 184 feet down, the stream, dashing along from rock to rock until it is rendered white with snowy foam. From the bottom the view is one of imposing grandeur. The famous bridge which once spanned the fearful gulf, 250 feet across, by a single arch, with its colossal ribs of white oak, two feet by four, which was a year and a half in building, and cost \$70,000, is no more. Hundreds of tons of rock have been thrown from the brink of the precipice by the aid of powder, and an immense amount of earth dumped upon them, and upon this the track has been laid across.

Here in this wild scenery of primitive Nature, the Susquehanna River appears suddenly to view. Descending along the side of a wild barren mountain, in a straight section, where the rocks have been blasted and removed to the depth of from ten to fifty feet to form our pathway, we have the grandest and most enchanting scenery to be met with in America. It should be seen in Autumn, when the atmosphere is clear and pure; when the leaves are ripening with many colors, and all Nature seems tinted with a thousand hues. Below, through the beautiful valley, flows the graceful Susquehanna. Clusters of willows line its banks, and tidy white cottages dot the smiling valley. The view in the Neversink valley was splendid—this is superior; and its beautiful vision will haunt the mind of the traveler for years to come. Down this charming valley on our right, the Jefferson Railroad extends; and often, in the winter, when the air is keen and frosty, long lines of white steam from the ascending train curl up over the tree tops, as if to meet that of the ascending Erie train, as neck and neck they fly along.

Swinging sharply to the left, around the base of the barren ridge and across a high embankment, affording a splendid view down the river, we come suddenly to the celebrated Starrucca Viaduct—one of the greatest bridge structures in America. It is 1200 feet long, 110 feet high, and 30 feet wide on the top. To be seen to advantage, the traveler should descend to the bottom, and look up upon its eighteen massive stone arches, so lofty in height, and with spans of fifty feet, never failing to strike the mind with astonishment and wonder. The sound of a footfall echoes and resounds as though we were in a church. This magnificent structure was finished within a year from the time of its commencement, under the able superintendence of Mr. Kirkwood, and cost \$320,000. Sweeping across its giddy height, far above the beautiful Starrucca vale, where the view is unsurpassed, and swinging again to the right, we dash across the Canewata bridge, at Lanesborough, one mile further on, and soon find ourselves close to the river, with the rocks along the steep hillside on our left, cleft down forty or fifty feet to make room for the track. A mile beyond Lanesborough, along this rock gallery, and we enter the Susquehanna station—192 miles from New York, and the end of the Delaware division.

No. 4.—Great Bend—Binghamton—The Susquehanna Valley —Early Settlers—Owego—Elmira.

Few towns in Pennsylvania are situated on more broken ground, or among more picturesque and romantic scenery than the flourishing village of Susquehanna. Many of the buildings are three stories high on the lower side, and only one on the upper, and in several places long flights of steps for footmen, lead from the lower streets to those above. And yet it is the best market place in the county. Thirty years ago a solitary farm house stood where the company's works now stand, and much of the present limits of the town were clothed in sombre forest, and many of the older inhabitants well remember when the entire site was clothed with Nature's green, and when from the rude hunter's cabin in the brier path they beheld the herds of deer dashing by, and listened to the doleful howling of the wolves from the wild glens and gorges around. The present population is nearly large enough for an incorporated city, and yet perhaps if no railway station had been established here parts of it would even yet have been in its primitive wilderness. The Erie Company pay the State of Pennsylvania \$10,000 a year for the privilege of running through their territory, and to save themselves from further taxation they have built their immense workshops in this State.

But the time for our departure is at hand, and proceeding to the depot where the splendid train is in waiting, and the hissing locomotive apparently impatient for the race, we enter the car, and taking our seat upon the soft crimson velvet cushion

we are soon in motion. At the lower end of the company's grounds we turn to the right and cross the Susquehanna by a double bridge. The first is composed of a single arch 186 feet in length; after which we cross a narrow island on a high embankment only a few rods in length, and then dash across the second bridge, 600 feet long, leading to the opposite shore. Once across, we curve again to the left, following close upon the river's right bank, and shortly afterwards we turn abruptly to the right, around a spur of cultivated hillside, and pass from the romantic view of Susquehanna station.

As we enter upon the Susquehanna division we must bid adieu to the long course of grand and picturesque scenery, though our way still lies among steep hills and winds through some heavy rock cuttings during the next eight miles, when we arrive at Great Bend, formerly the junction with the Delaware, Lackawanna and Western railway, leading from the coal mines at Scranton. The tiers of blue butter pails at the station awaiting shipment remind the traveller that Susquehanna County is also a famous region for butter. Its well cultivated hills and valleys, though often steep and stony, are always green with a luxuriant growth of grass, affording excellent pasture—its water is pure and cold, and for grazing and dairy purposes it is unexcelled. In the butter market of New York, Susquehanna and Orange Counties rank side by side, and have long been known as the best and most celebrated butter regions in the world.

Swinging to the northward, through an earth-cutting, over which the roads leading to the busy town cross by means of bridges, we pass over a long straight section, and at the end of four miles we again re-enter the State of New York. Gradually the valley becomes wider and more extensive, and the quiet scenery pleasant and beautiful. The view across the level fields is splendid. The broad Susquehanna, dancing and sparkling as it rolls along in the bright rays of the sun, is occasionally hid from our sight by tall, gray sycamores and bunches of willow, while beyond, upon the opposite side, we at times behold long lines of thick, white smoke, and now and then catch glimpses of the puffing steed ascending with its long train over the Delaware and Lackawanna road. This road is our opposite companion for fifteen miles, and as the tracks are much of the way in sight of each other, exciting locomotive races sometimes take place.

Kirkwood is our next stopping place, near which Joe Smith, the Mormon Prophet, is said to have been cradled. Eight or nine miles further on we pass the New York State Inebriate Asylum, a noble stone edifice, situated upon a high rolling bluff upon our right and resembling in its appearance the turretted castles of England. It is the first institution of the kind founded in the United States. The Delaware and Lackawanna railway now curves to the right, and crossing the river on a long wooden bridge, enters the inclosure with the Erie. We now enter the city of Binghamton, one of the most beautiful and flourishing places in Southern New York, and the largest we have yet seen. Junctions are here formed with the Delaware, Lackawanna and Western, the Albany and Susquehanna, and the Syracuse and Binghamton railways. The Chenango river empties its waters into the Susquehanna at this place, and the Chenango Canal, connecting Binghamton and Utica, terminates here. It was commenced in 1834, was three years in building, ninety-five miles in length, forty-six feet wide, four and a half feet deep, containing 105 locks, and cost about \$2,000,000.

Binghamton is the queen city of the northern portion of the Susquehanna Valley. It is 215 miles from New York, 142 from Albany, 80 from Syracuse, and 61 from Scranton. The nearest railway communication with New York is by the Delaware and Lackawanna road, the distance being 210 miles, and passengers leaving the great Atlantic city in the morning arrive there the same day. A walk through Court, Washington and Chenango streets, the main thoroughfares, will afford the traveller a view of the immense amount of business done. Surrounded by a rich farming community, it forms a ready market and shipping point for every direction. Its present population probably numbers between fifteen and twenty thousand.

One hundred years ago the whole region was a wild unbroken forest, and the wolf and bear prowled undisturbed on the very spot where the paved streets and elegant blocks now meet the eye. Many incidents of the early pioneer life of this lovely valley might be narrated, but we must content ourselves with only a hasty glance, and again dash onward.

The place where the city now stands was first visited by white men during General Sullivan's expedition against the Indians in 1779. The brigade of the American General James Clinton encamped here for the night while on their way westward to join the main army. In 1787, Captain Joseph Leonard dug out a log canoe, in the beautiful Wyoming Valley, Pennsylvania, placed his wife and children therein, together with the few goods he had, and hired a man to row them up the Susquehanna, while he followed along the banks with his two faithful horses. The journey was long and tedious, but the brave frontiersman pushed boldly on, despite all adventure and danger, and ultimately arrived at the Chenango junction—the present site of Binghamton. A rude cabin was at once erected, and soon the giant trees began to fall before the sturdy woodman's ax. This was the first permanent settlement. The blackened fallow was soon rendered green by a crop of waving grain; and though bears and deer and other "wild varminths" tore and trampled it somewhat, the harvest was far from a failure. Other settlers came in and the little colony was soon in a flourishing condition.

In 1794 a terrible freshet occurred. The river rose to a fearful height, and almost threatened the inundation of the little settlement. Crops being damaged and provisions destroyed, a season of severe scarcity soon set in. In this emergency Major Stow shouldered a bushel of wheat, in which the whole neighborhood owned an equal share, and started off on foot through the woods for Whittle's Ferry, where was situated the nearest mill, forty miles distant. On his return a general thanksgiving supper was prepared, and no tea ever tasted more refreshing than did that which he had brought with him from the ferry; nor no cake more delicious than did that plain short-cake made from the flour he had carried so far on his back, and shortened with bear's grease instead of lard.

Binghamton derived its name from William Bingham, an extensive land owner and a liberal benefactor of the infant village. Through his generosity the little settlement seemed to receive a new impulse, and ere long a grist mill and store was erected, and a neat church spire pointed heavenward. He was a member of Congress for several years, and died in London in 1804. His two daughters married two noted English bankers, who resided also in London.

About this time the little colony known as the "Nine Partners" settled in Harford, Susquehanna County, Pa., about thirty miles distant. The encounters they had with the wild animals, and the inconveniences and toils, and hardships and dangers they endured, were enough to appal the strongest heart. But like all the early pioneers, they were men not to be daunted. They believed this fair earth was not made for a few persons only, but for all of God's children, and that they were the men for the time; destined to clear the stately forest, and turn the wilderness into an Eden. They were in truth a band of brothers. In most of the new settlements quarrels were little known. They shared alike, they fared alike, and they sympathized with each other. All day long they swung their axes with untrifling energy, and at night they often gathered at one of the rude log cabins, surrounded by charred stumps and great trees, and chatted and laughed, and told stories till midnight. If a neighbor happened to get behind with his work, they met at his place in the evening, and in the light of a hundred brightly burning "log heaps," they piled brush and rolled logs, and branded heaps, till far into the night, accompanying their work with joy and song. As the settlements grew and flourished, they used to meet in the evenings to husk a neighbor's corn. This was termed a "husking bee." On such occasions the whisky jug was passed around, and its contents freely imbibed, which, although it was not like the poison whisky of to-day, never failed to detract from the respectability and intrinsic merit of the evening's entertainment. At other times they met in the evening with dogs and axes, to go on "coonung expeditions," to capture the animals which they claimed destroyed their growing corn. But often at such times a neighbor's green corn or pear tree, or melon patch, suffered far more than did the raccoon.

We love to dwell on the scenes and pictures of early pioneer life, where hard labor and hard fare, free from dissipation and luxury, developed man with all his pristine strength and beauty. They lived and toiled in the primitive forest, and the perfumed air of the wilderness brought strength and health; and despite the many dangers that surrounded them, they were ever sprightly and happy. Those who know not want and toil, and privation, know not how to appreciate the blessings nature confers. The harder an object is to obtain, the more we realize its value. At the time the "Nine Partners" settled in Harford, there was no mill nearer than Binghamton. Leaving one of their number at home to see to the chores, eight of them used to take nine bushels of corn on their backs, and with their guns in their hands, set off through the wild, unbroken wilderness, for this place, thirty miles away. They came through in one day and back the next, when all shared alike; and no doubt the corn meal johnny-cake, so richly earned, and baked before the great open-mouthed stone fireplace, tasted as good to them as does the finest pastry cake baked in the palace-bakery oven for the king. Talk of your Astors and Vanderbilts, and the honors of knighthood, and the age of chivalry, no more. They sink into mere insignificance when brought into comparison with these sons of honest toil, who first made the forest echo with the axe's stroke one hundred years ago; who first leveled the mighty wilderness of the lovely Susquehanna Valley, and prepared an agricultural Eden for their posterity. Of such spirit were the men of the Revolution. Would that we had more like them now! They have served their purpose, and made their mark in the world; and what though their names will not be spoken in gorgeous temples and gilded halls, the memory of their noble work is enshrined in the hearts of their successors, like a living temple of fame; and it will never die.

Crossing the Chenango River by a long and substantial bridge, under which the canal passes, we leave Binghamton, the city of a century's growth, and descend the Susquehanna. The river appears somewhat larger, and the same beautiful scenery continues. At Union, nine miles beyond Binghamton, the fertile flats are a mile in width, through which the glassy river flows slowly on, lined with willow groves and scattering sycamores. The first settlement was made here in 1789.

Six miles beyond Union we pass Campville, and seven miles farther on we come to the thriving city of Owego, twenty-two miles from Binghamton, and 236 from New York. In 1783, James McMaster and Amos Draper purchased of the Indians 11,500 acres of land, embracing the present city limits; and a few years later McMaster and a bound boy named William Tay-

for came on and cleared ten or fifteen acres, upon which they raised a fine crop of corn. This was the first clearing in the wilderness. Several settlers now moved in, log houses were erected, and soon the industrious little colony bid fair to become a thriving settlement. About this time a serious famine occurred in this region, and for six weeks the inhabitants were without bread of any kind. In this emergency the starving settlers dug wild beans and roots, which, together with fish and wild meat, saved them from the horrors of starvation. The growth of this place has been even more rapid than that of Binghamton, which it much resembles in size and appearance. It was first incorporated in 1827. Here we form a junction with the Cayuga and Susquehanna Railway, which extends from this place to Ithaca, on Cayuga Lake, thirty miles distant. Glen Mary, near here, is distinguished as being at one time the rural home of N. P. Willis.

Passing Smithboro and Barton, thirteen miles distant, all the way through the same beautiful scenery, we bid adieu to the Susquehanna, and pass over a less picturesque region, pass the stations of Waverly, Chemung and Wellsburg, after which we arrive at Elmira, 273 miles from New York, and the largest city on the Erie road.

No. 3.—Susquehanna and its workshops; or a glimpse at the machinery that fashions the wonders of the railway.

Again we are in Pennsylvania. We have made a good trip for one day, and now let us pause to view the immense machine shops that have made Susquehanna Station the Birmingham of America. The depot building is an elegant structure of brick, 325 feet in length. Here is the passengers' rooms, dining rooms, ticket office, telegraph office, etc. Everything is fitted up for ease and comfort. As we walk back over the long platform beneath the projecting roof of this model depot, past the dining hall where the ring of crockery keeps time to the nimble steps of the busy servants, and the telegraph rooms where the warning click of the wires at times fairly hum, we realize that this little town, set among the everlasting hills, is one of the most important stations we have yet seen.

The intervening space between the depot and the river on our left is completely covered with a maze of tracks and switches, and cars detached and in long lines loaded and empty, stand waiting to help form some train to be moved away to the east or west. The busy engines passing to and fro, breathing forth their hot fiery breath of steam in noisy, spiteful jets, puffing and throwing clinders from their tall smoke-stacks, deafening us with their sharp, shrill whistles, or the screaming and hissing of the escaping steam as the safety valves rise, fill the air with a constant din.

At the upper end of the passenger depot we pass over a short space well planked and paved, when we come to the freight depot, also of brick and 100 feet in length. A little further on are the gas works; and beyond this we behold the great round house sweeping around in an immense crescent of 450 feet. The turntable in the centre is kept almost constantly moving; and the polished reflectors for the head lights of the bright, glittering locomotives, peer forth from the surrounding stalls like the gleaming eyes of so many Cyclops. Directly back of this we come to the crowning structure of the whole establishment. This stupendous machine shop stretches along the base of the hill with an unbroken roof of 800 feet in length, and a width of 137 feet, forming one of the largest and most magnificent workshops in America. Five other shops stand adjacent to the main building, the dimensions of which are measured by hundreds of feet. They are all built of stone and brick in the most substantial manner, and the entire establishment probably covers over ten acres of ground. The estimated value of the entire property must be at least over two millions of dollars.

Over the many entrances are seen the familiar words, in plain letters, "No Admittance." Proceeding to the superintendent's office we readily obtain a pass, or permission, or perhaps a guide to go with us, when we return to the foundry, where the work commences, from the shapeless and crude material. The building is of brick, 60 by 130 feet, and within, one hundred men are at work. As we enter the doorway we have directly before us two huge furnaces, with streams of dazzling molten iron pouring from their base into great iron ladles holding 600 pounds each. Powerful cranes are swung slowly around, and as the vessels become filled with the liquid fiery metal they are seized by a simple arrangement, and as the men take their places, with the sweat streaming from their faces, the heavy receptacles are swung forward to the sand beds and emptied therein as easily as though it had been a glass of water. Just behind the furnaces is an immense iron weight, or maul, weighing 1800 pounds, worked by a steam engine, for the purpose of breaking old castings and large pieces of iron to be remelted again. Being drawn up to an elevated position it descends with tremendous force, and the broken pieces fly in all directions. They are then collected and drawn by steam power to an elevated platform near the top of the furnace, where they are thrown into the heated interior to bend, melt and run out at the bottom in a glowing stream. Twenty-five tons of iron are melted here every day; and a thousand car wheels are often turned out monthly, besides an equal amount of other castings. An additional room, 22 by 90 feet, contains the "wheel pits," while beyond is the foundry engine room, 20 by 30 feet.

Passing out from the busy foundry building, we come to the hammer shop—a plain brick structure, 80 feet wide and 160 feet

in length. Here are four stupendous hammers weighing 2,200 pounds each, operated by steam engines of 60 horse-power. By the side of each stands an enormous tubular furnace, eight feet in diameter, and reaching up fifty or sixty feet to the roof above. Near each of them a crane is fixed, by means of which great iron axles, etc., are handled as easily as though they were but rods of wood. Here all the axles and wrought iron work is manufactured. An iron door is opened in the side of furnace and the material to be heated placed therein; and as the door closes, a powerful blast from the engine is turned on, causing the furnace to tremble and roar like a hurricane. In a few minutes the mass has been heated to a glowing white heat, and as the door is opened preparatory to taking it out, a blinding glare of heat and light is thrown out over the whole apartment. The giant tongs grasp the heavy glowing iron, and the crane swings it to its proper place, when a small boy, ten or twelve years of age, who stands upon an elevated platform by the side of the engine, moves a lever and down comes the ponderous hammer with a force that fairly jars the whole structure. Again and again it strikes, fast or slow, light or heavy, as he who guides the power sees fit; the fiery sparks flying thick and fast in every direction, while the great mass of glowing metal is worked and moulded into shape as easily as though it had been wax or dough. Here, then, we see the harmony, and power, and beauty of machinery, working as near perfection as human hands can make it. Every one has an allotted part to perform, and no one appears crowded or hurried. Thus one drives the engine, another guides the huge tongs as they hang balanced and suspended from the crane, others work the crane, others shape the iron, etc. During dark nights, when all four hammers are in operation, a grand display is presented. The fiery furnaces gleam with an intense brightness; the whole apartment is grandly lit up to a dazzling pitch; the faces of the workmen glow in the ruddy light, and as the mighty hammer comes down with crushing force a multitude of blazing sparks are thrown all over the room like a shower of ten thousand brilliant stars. As the furnace doors are thrown open, streams of vivid light flash forth, causing the beholder to shade his eyes with his hands as he retreats before the unbearable rays.

Next we come to the carpenter shop—a plain stone building, 80 by 130 feet, and two stories in height. On the first floor all the wood-work required in repairing locomotives is done. On the second floor twenty men are constantly employed in making patterns. We next enter the paint shop and pattern room—a brick structure, 60 by 120 feet. A small army of painters are at work on the lower floor, along avenues of barrels, and kegs of oil and paint, and long rows of newly painted wood-work stand leaning against the racks and walls to dry. Here all the painting for this immense establishment is done. Ascending to the second floor we find ourselves in a perfect wilderness of patterns. Here are stored the fruits of the labor of twenty men for years. They are piled upon racks and in long tiers, with aisles and alleyways between them like streets in a city, and as we walk along, surrounded and shut in by the tall rows of the innumerable host of patterns towering far above our heads, we feel almost bewildered and lost. And yet they are so arranged and numbered that those who have the handling of them can place their hand upon any one they want without a moment's hesitation. In this room can be found patterns of every conceivable shape, form and size used in the construction of locomotive and car-work, and the tools and machinery with which they are constructed. Their value is said to be \$200,000.

Near by is the store-room for all the different kinds of tools used in the whole establishment. Choice lumber, brass, etc., is also stored here in immense quantities. Its size is 50 by 160 feet. Many other large rooms and noble edifices are connected with the works, being used for different offices, store-rooms, etc.; but without stopping to explore all of these we will proceed to the superintendent's office again and prepare for the tour of the great machine shop. The following truthful and graphic description of the interior of this vast structure is given by a correspondent and eye-witness.

"Passing from the office down the stairway we find ourselves at the entrance to the great machine shop, and stopping at the first landing, which is ten or twelve feet above the floor of the room, we gaze off upon that sea of machinery, and through the immensity of space which stretches away before us eight hundred feet—a little less than one-seventh of a mile—in one continuous apartment, beneath one grand roof, spreading like the arch of the heavens. The men working at the farther end look like boys at play. Descending to the floor we pass around to the left and enter that wilderness of rattling belts and wheels.

"We pause under the great shaft, upwards of seven hundred feet in length, which turns above our heads, and to which are attached innumerable belts, and the eye endeavors to comprehend all that extent of machinery as vainly as it would explore the depths of a forest at a single glance. We pass scores of lathes unwinding long silvery ribbons and cord from bars of steel; drilling machines without number, where instruments of diamond hardness are penetrating and eating their way through massive steel plates; and planing machines, where planks and beams of steel are as quickly and as easily planed as if they were pine boards. Walking down the room beneath the main shaft, when we have reached the centre we discover the agency by which the engine, which is in another room, at one side, moves all this machinery. It is a huge leathern belt, two feet in width and an inch in thickness, which encircles the power

ful iron balance wheel of the engine, twelve feet in diameter, and reaches out and around this main shaft and turns the whole seven hundred feet, and it in turn gives motion to all the machinery in this vast apartment."

In this room locomotives are built and repaired, and from twenty-five to thirty of the beautiful iron steeds may be seen here all the time. Passing out through the side door we come to the engine-room, where stands the power that drives this whole babel of machinery. We cannot help looking in to view the huge double Corliss engine, working so silently and yet so powerfully. The steam generated in those ponderous boilers standing there side by side like twin brothers, give life and motion to the whole establishment. The long steel arms work so exact and true, and the piston moves with such precision in the beautifully mounted cylinder, that we cannot but admire the splendid workmanship displayed; and as we reflect on the power of this tireless giant, causing steady pulsations of its mighty strength to pervade almost every part of the great room we have just left, and filling the whole atmosphere with the constant hum and jar of machinery, we are filled with wonder at the progress of man in handling the unrivaled powers of Nature.

The beautiful brick chimney which rises near here, so straight, and true, and lofty, appears almost like a monument, and reminds us of the time-honored shaft on old Bunker Hill. It is 14 feet square at the base and 112 feet in height. When the work was finished a party of twenty-two persons ascended to the airy summit and partook of a sumptuous dinner, while the eye drank in the splendid view of the magnificent works and the surrounding scenery.

We now enter the yard, surrounded on all sides by the immense buildings we have just surveyed. Here are heaps of castings and locomotive iron work, tires for locomotive driving wheels, some of which are eight feet across, iron chips, shavings, and scraps for remelting, etc. Beyond we find ourselves once more in a maze of tracks and switches, among a host of moving trains and cars and puffing steeds. Upon the farther side, next to the river, are long rows of old car wheels and wrecked locomotives ready to be taken into the shops and worked over, and below are houses for storing iron, etc. Proceeding down the multitude of tracks we arrive at the depot, somewhat tired, though well repaid for our tour of the entire works.

Some time is yet left us before we need depart on our westward journey, and this we will improve by ascending into the town, and back along Main street, just above the great machine shop, to the rising ground half a mile away, midway between Susquehanna and Lanesborough. In this spot we behold in one grand panoramic view the greatest works of the entire Erie Railway, set in the most picturesque and enchanting landscape it is possible to conceive. To the northeast the eye is feasted with a splendid view far up the river, and the winding course of the railway, until it curves behind the barren hill near the cascade gorge three miles distant. A far-off view of the Starrucca Viaduct, appearing in the distance like some old moss-covered ruin, helps to form the noble picture. Nearer is seen the beautiful wooden bridge over the Canewacta Valley, 450 feet in length and 70 feet in height. Below, the valley becomes more narrow, and the track winds close to the river, almost beneath our feet, and as we turn our faces to the west to follow its course down the river, we behold the immense works at the station, where are concentrated the paraphernalia of the great railway. The ringing of bells and the shriek of steam whistles reach the ear, and long moving columns of thick black smoke appear to the eye. Eight hundred men are required to run this great establishment, and \$40,000 to pay their monthly wages.

Here is the foot of the heavy grade leading over the mountain barrier to Deposit. As the long freight trains come in from the west, heavily loaded, the engine is unhitched and run into the round house and another takes its place. But with the upward grade one engine can do but little. Two immense locomotives, termed "pushers," with four driving wheels on each side, move forward and take their places behind the train, and at a given signal the steam is applied and the ponderous train begins to move slowly forward. From our elevated position we can watch its progress up the summit for a long distance. As it slowly approaches us we step to the brink of the precipice and look down upon the laboring locomotives as they pass along the quarry among the little army of busy stone-cutters below. The heavy "pushers" fairly jar the ground in the display of their mighty power; while cinders are shot upward and great volumes of black smoke roll heavenward and mark its course for miles. With pleasure we watch its airy flight over the Canewacta bridge, far above the streets and roofs of Lanesborough, and further on its lofty passage over the Starrucca Viaduct, higher than the trees, above the lovely valley, and anon its distant passage around the steep rocky hillside, until it passes from sight behind the rugged mountain, where sombre hemlocks clothe the base, and riven oaks and stunted vegetation crown the portion above where the track is laid. Along the busy valley long white church spires point skyward, thick smoke rolls from the tall black smoke-stacks of steam mills, the streets are filled with vehicles, pasture and meadow lands lay spread out like a vast map, dotted here and there with beautiful groves, and willow copses, and neat mansions, forming a splendid view, upon which the artist and painter might gaze with rapturous delight, and well repaying us for our little jaunt from the station.

No. 5.—*Sullivan's Expedition against the Indians—Elmira—Early Settlers—Hornellsville—Picturesque Wonders of Portage Tip Top Summit—The Genesee Valley—Cuba.*

At the time of the American Revolution, there lived in the central part of the great State of New York, along the Genesee flats and the Mohawk valley, several tribes of Indians, known as the Six Nations. Prominent among these were the Seneca's and Cayuga's. In many places where their villages were established the trees and brush had been cleared away, fields of corn planted and orchards set out, that in the autumn bent beneath the loads of ripe fruit. For savages they were indeed in a prosperous and flourishing condition. In an evil hour they listened to the insidious voice of the British soldiery, who flattered them as great braves, and filled their imaginative minds with pictures of plunder and barbarity; and bedecking themselves in a panoply of feathers and war paint, they started on the war-path against the straggling settlers. The atrocities they committed at Cherry Valley, and Herkimer, and Wyoming, Pennsylvania, were enough to cause the blood to curdle in the white man's veins.

In August, 1779, General Sullivan marched against them with an army of 3,000 men. This famous expedition started from Easton, Pennsylvania; and penetrating the unbroken wilderness to the northward and westward, through the Susquehanna and Chemung Valleys, early rendered southern New York historic ground. At Tioga Point he was joined by General Clinton who had marched southward from the Mohawk with a force of 1,000 men, and together they pursued the retreating red men to Newtown, near the present city of Elmira, where the enemy made a stand.

As the morning of the 29th of August dawned over the wilderness, a state of unusual activity prevailed in the American camp. Roads were being cut, scouts and reconnoitering parties departing and returning, couriers and officers hastening from post to post, companies and divisions being hurried forward or massed in position, indicating the eve of a general engagement. The Indians and British had taken a strong position on a commanding hillside where they held a superior advantage over the American forces, and they felt sanguine of success. Remembering the bloody work of the Tories and Indians at Wyoming Valley, and the inhuman atrocities and fiendish crimes of Sir John Johnson, and Butler, the valiant patriot army pushed forward with the firm resolution to gain the victory or leave their blood-stained bodies upon the ground to be picked up by the wolves of the forest. Men who had seen their cattle and crops destroyed, their houses fired, and their wives and children torn from their bosoms and tomahawked and barbarously murdered and their scalps torn from their heads, dripping with blood, were not the men to falter. They loved not war, but in this they knew their cause was just. The blood of those murdered ones cried from the ground for vengeance. With a determined step they pressed forward to meet the insidious foe.

The battle was commenced by a scattering fire of musketry; the white smoke at first curling up here and there among the sombre hemlocks and dark green foliage of the forest, and becoming thicker and more dense as the conflict continued. It was late in the day before the artillery was brought into position and the engagement became general. Then for a time the horrors of war were let loose. The hurtling missiles of death rained through the forest, and the cannons' roar rolled through the Chemung Valley like the sound of thunder. For more than two hours the enemy stood their ground and fought with determined resistance, and then they broke and fled. The combat dwindled down to scattering musket shots again as the Indians dodged from tree to tree, and anon ceased altogether. The foe had fled.

The American army pursued the retreating enemy, spreading desolation on every side. Onward they marched to the very heart of the Seneca country; burning no less than eighteen Indian villages, and destroying their cornfields, gardens and orchards. The courage of the savages was broken. The waving plume of the ferocious Brant, which had made him so conspicuous at the battle of Newtown, trailed in the dust, and the bravery of his warriors was dampened. Sullivan's expedition accomplished its work, and the power of the savages in New York received its death blow. Their incursions became less numerous and more feeble, and ere long ceased altogether. The savage chieftains, Brant, Little Beard, Red Jacket, Han Jerry, etc., were compelled to yield to the westward march of civilization; and their infamous inciters and leaders, Butler, Johnson and St. Leger, went down to history as the enemies of their country, with the anathemas of mankind resting on their heads.

In 1788, Colonel John Hendy, a veteran soldier, who had served admirably in Sullivan's expedition, moved into the far woods and built the first settler's cabin, where the city of Elmira now stands. During his march through the forest nine years before, he had noticed the rich and beautiful flats at the junction of the Newtown creek with the Chemung river, and he at once determined upon a settlement at this place. The early pioneers bought the land at eighteen cents per acre; and hence a good farm cost but a trifle. Hendy was just the man to lead a settlement. He was a man of iron nerve and determined will, and within him was united extraordinary courage and remarkable physical power. His early conflicts with savage beasts and more savage men were often conflicts of power and might terrible to witness.

In 1790, a treaty between the United States and the Indians was held at this place; at which time nearly all of the principal chiefs and more than one thousand warriors were present. Seven years later it was visited by Louis Philippe, who afterwards became the king of France, accompanied by two dukes, De Nemours and De Berri, who had travelled all the way from Canandaigua, seventy miles distant, on foot. A flat boat was hastily constructed and launched upon the river, and Mr. Tower conveyed them down the Chemung and Susquehanna, through the wild regions of forest beauty to Harrisburg. From this time on the little forest colony grew and flourished; troubles with Indians ceased, and in 1815 it was incorporated under the name of Newtown. Its ancient Indian name was Conewah; said to signify "a head on a pole," from the fact that the head of an Indian chief was once found here thus erected. In 1828 it was changed to Elmira.

The opening of the Erie Railway brought hundreds to the quiet little village, and it moved rapidly forward until it became a thriving city. To describe it as it exists to day would be but a repetition of the general description of Binghamton and Owego, which it so very much resembles. Like them it is situated in a lovely valley, through which flows the placid Chemung, which we saw and crossed for the first time some fourteen miles back. Like them it is surrounded by ranges of hills that seem as though they were placed there on purpose to break the cold northern blasts, and protect the rich alluvial bottoms, always under the highest state of cultivation, and teeming with a luxuriant growth of vegetation.

Junctions are here formed with the Williamsport and Elmira Railway, extending south into Pennsylvania, and the Elmira, Canandaigua and Niagara Falls Railway, connecting with the northern routes through Canada. The Chemung canal also extends from this place through a charming valley, winding among ranges of rugged hills, with ever-varying scenery, to Seneca Lake, twenty miles distant. As we pass through the city we are astonished at the amount of business going on in this one little spot. An immense number of switches and side tracks extend in all directions, over many acres of ground, miniature cities of freight cars in long rows and detached masses, some loaded and some empty, stand waiting to be moved away; locomotives are moving about in every direction, while from the machine shops come the clang of heavy hammers, and the constant buzz and whirl of machinery, reminding us of what we saw and heard at Susquehanna. In 1870 the population of Elmira was 15,863. It is now probably near 20,000. About six miles from this place General Sullivan slew seventy of his old cavalry horses and left their carcasses lying in the woods to be picked by the wolves. The first settlers finding so many whitened skulls lying about, gave to the place the name of Horseheads—a name it has retained to the present day. I would like to tell you about Cathermetown, and the half breed Indian, Queen Catharine, who once resided in Chemung County, near here, but have not the time at present. Perhaps at some other time I may. Her beautiful Indian village near the head of Seneca Lake was destroyed by General Sullivan in 1779.

Crossing the Chemung River we pass Big Flats and soon arrive at Corning, seventeen miles beyond Elmira, and another thriving railroad junction. Here we meet with the Corning and Blossburg Railway, and the Buffalo branch road, by which we may go to Rochester, ninety miles distant, or Buffalo, one hundred and forty-two. A mile further on we cross the Chemung by a long bridge, and at the end of another mile we come to the Chemung Forks, where the two streams known as the Conhocton and Canistota unite to form the river. Just beyond is the station at Painted Post. Crossing the Conhocton River we strike across to the Canistota, and follow its winding course among the hills of Steuben County, past the beautiful little stations of Addison, Rathboneville, Cameron, etc., to Hornellsville, 331 miles from New York, and the end of the Susquehanna division. It is pleasantly situated in a wide and fertile valley, surrounded by neat fields, and orchards, and meadows, carried on by well-to-do farmers—not aristocrats, however, who live in splendor and idleness in the city, and walk out once or twice a week to see if their hired labor and white slaves are working properly—but real practical farmers; men of industry, who believe with the immortal Franklin that "He who would thrive must rise at five;" and again, "He that by the plow would thrive, must himself either hold or drive." The great round house and machine shops, with their tall blackened chimneys, from which long columns of black smoke are rolling, and the long lines of cars, with switching engines moving briskly about, at once proclaim the division station.

At this place connections are made with the great railway line leading through Portageville to Buffalo, the depot of the great lakes, and the grain market of America. About thirty miles up this line there is some of the grandest scenery the eye of the home traveler ever witnessed. It is at the point where we meet the Genesee, as it leaps from rock to rock, lashing itself into snowy foam as it thunders down between the everlasting walls of riven rock, far down into the dark depths of the gorge, where the tourist may stand upon the slippery rocks and gaze upward upon Nature's mighty work; rock piled upon rock, and crag upon crag, picturesque, grand and sublime. In 1853 the railroad company spanned this fearful ravine by a splendid bridge 800 feet in length, resting upon thirteen stone piers firmly set in the river bed. The view from below is superb. The maze of timbers forming the wood-work of the bridge reach far upward, 234 feet above where the water ripples

along over the stones and broken rocks at the bottom, seeming almost to meet the narrow streak of blue sky that peers down between the black jagged rocks as if to light the world of darkness below. Following along the ravine, we soon come to a spot where perpendicular walls of dark slate rock reach upward on either side more than 300 feet above our heads; covered in places with dark green moss, always damp from dripping water or the spray of little waterfalls, that take the tremendous leap and resolve into thin mist long before they reach the bottom. In places stunted trees have entwined their roots in the crevices of the rock, and thus planted within a firm foundation, far up the craggy wall, they stand bidding defiance alike to wind and storm, like hoary-headed sentinels set by an eternal hand to guard the spot. The echo of our footfall resounds from point to point as though we were passing along the aisle of a church; and the dark shadow of our bodies is reflected in the glassy pool like black giants of the wild glen. Suddenly there breaks upon the ear a low murmuring sound like the noise of a distant waterfall, or the sighing of the wind among pine tree branches, growing louder and more heavy with each succeeding moment, until the great rock gallery seems to jar and tremble, and then the iron horse comes dashing upon the bridge, and with his ponderous train makes his airy flight overhead. The wild scenery about us produces a feeling of awe, and the mighty works of human genius displayed in the handling of Nature's powers fill our minds with astonishment. The original bridge at this place was said to have been built in such a manner that any timber in the structure could be removed and replaced again without disturbing any of the others.

We might go through to Buffalo, and so on to the west by this route; but we had planned to proceed by a different line, and so will not tire the reader with a further description of the wonders of Portage. Leaving Hornellsville we enter the narrow valley of the Caniadea Creek, and soon commence to ascend a heavy grade of about fifty feet to the mile, winding along through a variety of beautiful and ever changing scenery, past the little village of Alfred, and on to Tip Top Summit, where we are 1760 feet above the level of the sea. This is the very highest point of land we shall pass over for very many miles.

Our descent into the Genesee Valley is by a grade of forty feet to the mile, with no particular scenery worth recording. Following the valley of the Genesee for eight or ten miles we bid it adieu and commence the ascent of another grade of thirty feet to the mile that is to carry us to Cuba Summit, a few miles farther on. Arrived at the summit a descent of five miles brings us to Cuba station, on Oil Creek, and only six miles from its source. We have now passed the last ridge of the great Alleghany system, and the character of the surface of the country will soon commence to change.

No. 6.—*Salamanca—The Atlantic and Great Western Railway—Corry—The Oil Regions of Pennsylvania—Early History and Configurations—Oil Creek Valley—Derricks, Tanks and Refineries—Titusville—Oil City—Meadville—Crawford County—Mounds and the ancient mound builders.*

"Salamanca!" cries the conductor. Westward bound passengers desiring to see the wonders of the Oil Regions will diverge here to the track of the Atlantic and Great Western Railway. We have beheld the grandest scenery of the Erie road, having already passed over the Eastern or New York division, the Delaware division, the Susquehanna division, and over 80 miles of the Western division, to a point 413 miles from New York, and only 46 miles from the blue waters of Lake Erie; and as the remaining portion of this road and the Lake Shore road is somewhat uninteresting and monotonous, we willingly make the change. The railway we have followed so long has been a railway of almost constant curves and crooks. These amount to over 22,000 degrees, or nearly enough, if placed in the right position, to make 62 complete circles. It has carried us among the everlasting hills and winding valleys, where every turn opened a new feast for the eye, and the works of art seemed to be vying with the hand of Nature in the production of scenes of loveliness and beauty. Such changing scenery is gazed upon with delight, and the eye of the traveler is never tired.

Passing out from the busy and rapidly growing town of Salamanca, among a host of locomotives and switching engines and long trains of oil tanks, we fly along down the charming valley, our course once more tending towards the Quaker State. Looking back we behold the round-house and turntable, moving columns of thick black smoke, locomotives and cars in slow motion, with brakemen upon their tops waving, their hands to the engineer as a signal to let him know when to move backward or forward, and when to stop, while the ringing of bells, the sharp shrill whistles of locomotives and the ear-piercing hiss of escaping steam, proclaim the railroad terminus and the importance of the place. It is one of the great outlets of the Oil Regions, and the trade in petroleum and kerosene is rapidly building up the place.

The Atlantic and Great Western Railway is one of the main thoroughfares between the East and the West. The main part extends from Salamanca to Cincinnati, 448 miles in length; while the branches extend to Cleveland, Oil City, etc. In comparison with the Erie it is a new road, it having been finished only a few years since. Passing through a more level region with less curves, embankments, costly bridges and rock-cuttings, its original cost was probably much less. The amount of business it carries on is immense.

A run of seven miles brings us to Red House Station, and five miles farther on we stop at Steamburg. The scenery appears dull and uninteresting; and as we pass on down the valley with the speed of the wind, the wooded hills that open from its banks appear to be whirling backward in a great circle, while the telegraph poles and other near objects flit by almost like flashes of lightning. Randolph, Kennedy, Jamestown, Ashville, Panama, etc., are soon passed, and ere we are aware of it we find ourselves at Corry, 61 miles distant, and again in Pennsylvania. We have bid adieu to the State of New York for the last time.

Here we find a busy station and railway terminus containing seven thousand inhabitants. The Oil Creek Railway extending through Titusville, Oil City, and the very heart of the Oil Regions, ends here. Here, too, we form a junction with the Philadelphia and Erie Railroad. The amount of business, especially in oil, is enormous. Long trains of oil tanks stand upon the lengthened switches, awaiting removal to the refineries in the North and East. Some are marked for New York, some for Boston, some for Buffalo, and some go to the nearer refineries at Elmira, Olean, and Salamanca. The immense oil refining works at this place contain huge iron tanks capable of holding 10,000 barrels of oil. Everything is tinged with oil; and the whole vicinity smells of kerosene. And well it may, for thousands of gallons are stored here, and hundreds of oil cars constantly stand on the tracks, and the trade in this important product of Nature has built the place. Sixteen years ago this busy spot was an unknown forest. The fish-hawk perched without fear upon the tops of the tall dead trees that stood here and there along the margin of the stream, and screamed to his mate upon some neighboring tree, perhaps standing where the thickest part of the town now exists. The wild cat roamed unmolested along the rocky hillside, and the deer bounded gracefully through the thicket, little dreaming how soon their favorite haunts were to be changed. How rapidly the face of nature changes when man has made an important discovery and set his hand to the work.

The Almighty Creator, with beneficent wisdom and power, has prepared everything necessary for the wants of man, and we often find them out just in the right time that we should. A few years since who would have believed that a mineral substance, a stone, dug from the earth, would be used as fuel in place of wood? A few years since who would have believed that a substance would ever be pumped from the ground that would be burned in our lamps, and take the place of candles and whale oil? And yet a few years has wrought the wonder and brought the change. And furthermore, the discovery came at the right time that it should. What need of coal when timber was so plenty that it was a burden on the ground? What need of kerosene while whale oil could be easily obtained in abundance? But, as wood and oil began to be scarce, the new discoveries were made, and lo! there were great natural reservoirs stored up for us in the bowels of the earth, where it had lain for thousands of years. And so it will ever be. God's people were never placed upon this earth to suffer for the want of any great natural necessity like fuel, water, light, etc.; and when the time comes that any of these important substances approaches failure, depend upon it, a new and better discovery is at the door, or the world is ripe for a universal convulsion that will overthrow all animated life, and re-people it with different beings, with different wants and necessities.

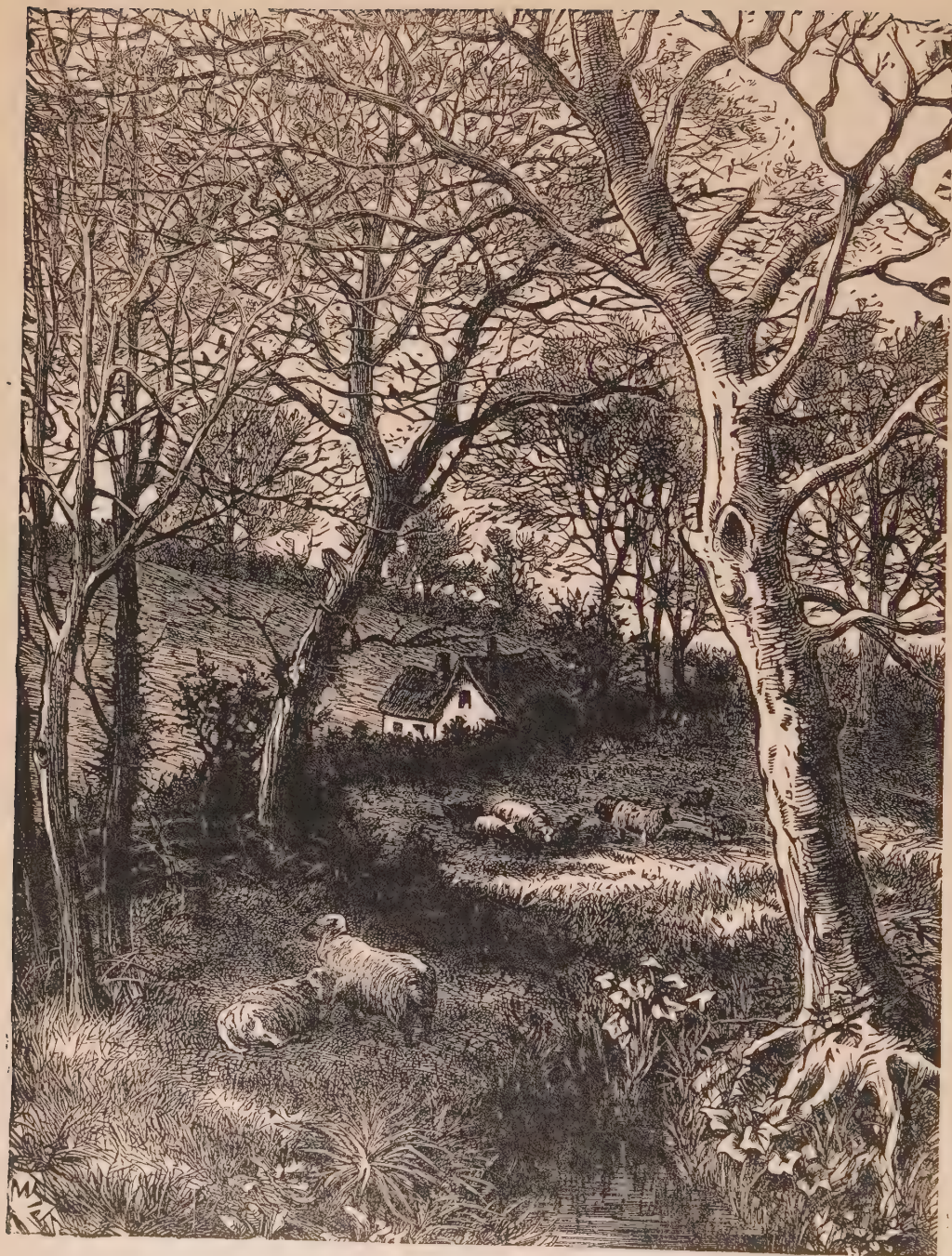
Oil Creek is a tortuous winding stream, flowing among steep, craggy hills, through a narrow valley, presenting a change of scenery at every turn. This deep and crooked valley, flanked by precipitous hillsides, ledges and land-slides, once rendered gloomy by the dark evergreen foliage of pines and hemlocks, is now the most famous oil region of the Western World. In 1853, Dr. Brewer collected much oil by spreading blankets over the springs, and as they became saturated, wringing out the oil. But this process was slow and expensive, and but little progress was made in the business. In the winter of 1857, Colonel Drake, an enterprising capitalist of Connecticut, arrived at the little lumbering town of Titusville, and commenced boring for oil. It was the first oil well of the region, and the operations were attended with many drawbacks and inconveniences. The tools had to be carried fifty miles to be repaired; and weeks and months slipped quietly by with nothing but expense to reward his labor. But a determined mind is never put down. His losses ran high, but he saw a golden harvest ahead, and he persevered until the 29th of August, 1859, when the drill suddenly sank into an oil vein, and he drew forth a thousand gallons in a day! The excitement was intense; and a crowd of greedy speculators were soon on the ground, purchasing and leasing the land, sometimes at almost fabulous prices, and dreaming by night of fortunes made in a day. Steam saw-mills were hastily erected all along the creek; and the tall pines and ponderous hemlocks were soon swept away from the valley and steep hillsides, and the owl, the bear, and catamount were forced to flee before the march of civilization and seek a home farther from the abodes of man. Companies were formed all over the Union. Some lost their all, and others became immensely rich. Generally speaking, however, the business was exceedingly prosperous, and the price of kerosene went rapidly down until it became worth only a few cents per gallon. From that day to this the business has been steadily increasing; and the traveler beholds at every turn clusters of tall derricks, monster refineries and tanks, iron smoke-stacks reaching far up towards the sky and rolling forth great clouds of thick black smoke, while the engines labor at

the pumps and drills, long rows of oil cars ready for removal, machine shops, freight houses, etc., all indicating at a glance the vast amount of business done along the rugged valley. Everything appears drenched in oil, and the very atmosphere is filled with the smell of kerosene. Some times, through accident or from lightning, the tanks and flowing wells take fire and the most terrible conflagrations ensue. Such was the case in 1862, when ten oil wells took fire in quick succession, and thirty thousand barrels of oil burned at once. Since then many more disastrous fires have occurred, causing acres of flame, and the destruction of wells, derricks, machine shops, tanks, cars, etc., and blotting out all the paraphernalia of a whole establishment. Such a scene can be better imagined than described. The roar of the devouring elements resemble thunder; and frightful explosions fall upon the ear and startle the beholder with terror. In the night the whole world seems lit up with a grand blaze of light; and above all rolls a dark cloud of thick sulphurous smoke as if to shut out the horrid scene from the heavens above. Oil Creek itself has often been on fire for miles, and the flames have ascended from its surface far up among the tops of the tall trees that in many places line its banks. In the month of July of the present year (1876,) the lightning struck the tanks of one of the leading oil companies of this region and set on fire 113,944 barrels of crude oil.

The oil is now carried from place to place throughout the near vicinity of the Oil Regions by means of iron pipes, some of which are many miles in length. This is one of the simplest inventions, and yet one of great importance to the oil producer. Wherever it extends it annihilates the expensive freight rates charged by the railway companies for its conveyance, for, like water, it conveys itself throughout the whole length of the pipe to any point not higher than its source. A project is now on foot in this section to construct a grand pipe line to the Atlantic seaboard. Nearly all the pipe-line companies of the Pennsylvania Oil Regions are co-operating in the enterprise, charters have been obtained, and an able engineer appointed to examine the subject. He estimates the cost of a four-inch pipe, 800 miles in length, at \$792,000; and a six-inch pipe at \$1,584,000. The laying would of course cost many thousands more. But the expense is not like that of building a railway; and when once constructed it is conveyed almost free of charge. Doubtless the skill and ingenuity of man will in the near future furnish us with oil for lights at even a cheaper rate than it is now selling at. The supply seems to be well nigh inexhaustible. The month of July just passed was the most active in connection with the oil trade ever known up to that time. In that one month alone, 1,162,738 barrels of crude oil, or its equivalent in refined, was shipped from these regions. During the same time 196 new wells were sunk, producing in the aggregate nearly 3,000 barrels daily. The history of kerosene oil, together with an account of the great conflagrations of the Oil Regions, has already been given through the columns of THE GROWING WORLD; we will, therefore, cut short this diversion, and proceed at once with our journey.

Much of our way now lies through a newly cleared country; and occasional black patches of fallow ground thickly set with charred stumps meet the eye. Nevertheless little hamlets and oil stations are thickly set all along the valley; and in some places one is scarcely out of sight before we reach the next. Passing Spartansburg, Centreville, Tryonville, and several others, we come to Titusville—27 miles from Corry, and 501 from New York. Here is a great natural oil spring; and near here the first oil well was sunk, as has been before narrated. The city is one of rapid growth, and although it is but in its infancy, it already approaches in point of size Owego or Elmira, and contains many noble and flourishing institutions. Like the many little hamlets we have left behind, it is rendered dingy with oil smoke and dust, and the railway switches are well filled with oil cars, ready to draw from the stupendous tanks a full supply. Leaving the important city of Titusville we pass in quick succession Shaffer, Pioneer, Petroleum Centre, etc., etc., and soon arrive at Oil City, the great central depot of the Oil Regions. Here Oil Creek empties its waters into the Alleghany River. At McClintock, only three miles back, we passed another natural well, which was well known to the Indians, and the oil collected and sold by them for medicine was long known as Seneca Oil. We now pass through a city of derricks, where the clinking of drills, the puffing of laboring steam-engines, the clang of hammers, and the busy hum of machinery is heard in every direction. Long lines of inky smoke ascend from the locomotives and roll along the valley, and the ringing of bells and shriek of whistles, and thunder of heavy trains fall upon the ear in mingling confusion. Fellow-traveller, be not afraid of smoke, dust, and oil, for everything you meet is tinged with it. The monster tanks, refineries, and oil works at this place are wonders in themselves, and resemble vast hives of human industry. The city is built on a strip of flat land, near the base of a high steep bluff, and may be reckoned among the largest cities we have yet seen. Along its narrow streets may be seen a motley crowd of laborers—black and white, Irish, English and German.

Here is the terminus of the Franklin branch of the Atlantic and Great Western Railway, which will carry us onward to the main line again, which we diverged from at Corry. The first station out from Oil City is Reno, three miles distant; after which we pass Franklin, five miles further on, then Sugar Creek, Utica, etc., all more or less connected with the oil trade, and anon we reach Meadville, 36 miles distant; by the way we have come, 555 miles from New York; though by the more di-



OUT-DOOR LIFE—THE FARM.

rect route, by the way of Corry and Salamanca, it is only 517. At last, then, here we are again, upon the main line of the Atlantic and Great Western, 42 miles west of Corry. Meadville is a more handsome town than many others that we have lately seen, and although it is the centre of an immense trade with the Oil Region, it is more free from dingy coal dust, smoke and the odor of kerosene. It is situated on French Creek, in the delightful valley we have followed up from Franklin, and is the county seat of Crawford County. It is numbered among the oldest towns of Western Pennsylvania, and contains many noble institutions. Conspicuous among these are the State Arsenal, the Meadville Academy, the Alleghany College, founded in 1815, and the splendid Court House near the beautiful public square. The streets are neat and clean, and in many places admirably shaded by long rows of trees. Taken all in all, Meadville is a pleasant place to stop at, and an agreeable place for the weary traveller to rest after the fatigues of the journey.

Crawford County is gently rolling, or undulating, but the hills are nowhere so high and steep as those we saw in the Oil Region. The soil is almost universally rich, and good especially for grazing, and there is little or no real waste land in the county. "On an extensive plain near Oil Creek there is a vast mound of stones, containing many hundred thousand cart loads." When it was first discovered there had soil enough accumulated upon its summit to support a noble pine tree that had there taken root, and for long years withstood the burning sun of summer and the roaring blasts of winter. Who built it is a mystery; though it is generally ascribed to an ancient race, who are supposed to have built many far greater mounds found scattered over the Mississippi Valley and the far West, some of which, considered as works of art must have been grand and imposing in their mighty proportions. If there ever was such a race, they probably inhabited America previous to the Indians, and many, many centuries before the sailing of Columbus.

No. 7.—Conneaut Lake—Across the Pennsylvania line—Ohio Surface and Soil—Early Settlements and Border Wars—Approach to Cleveland—The Lake Shore—A Day in the City—Lake View Cemetery—Reflections.

Again we are in motion. Eight miles out from Meadville we pass Sutton's Station, and six miles further brings us to Evansburg; near the south shore of Conneaut Lake, a clear and beautiful sheet of water, four miles in length by two in width. This lake abounds with fish; and during the warm days of summer, when the atmosphere is clear and the calm surface of the water appears without a ruffle, the fisherman launches his little boat and glides out over its placid bosom to a clump of willows, or some favorite old tree upon the margin, and there in the cool and grateful shade takes solid comfort with the rod and line.

The general course of our route now winds southwardly, along a somewhat crooked though fertile valley, and ere long we enter Mercer County—famous for bituminous or fine coal, which is abundantly found in almost every part. Swinging to the westward we shortly cross the Pennsylvania line. Orangeville is the first stopping place in Ohio. Two more stations are passed and then we arrive at Warren—the county seat of Trumbull County—pleasantly situated on the east bank of the Mahoning River. At Leavittsburg, three miles beyond Warren, we leave the main line of the Atlantic and Great Western Railway, and diverge to the northwest on a branch line. The surface of the country is smooth and generally rolling, and the scenery dull and monotonous.

The road now becomes more straight and level, and as there is nothing especially interesting to be seen along the route, we will call the reader's attention for a short time to a few remarks on the general surface and early history of the State. Travelers who pass along the Ohio River and view its lofty banks, often steep and rugged, with their summits barren or scantily clothed with a covering of scrub-oaks, briars and dwarf pines, are very apt to form a wrong opinion of the general appearance of the State. Had they ascended the creeks and streams that pour their waters into the Ohio from the north, they would have found themselves upon an elevated table-land, gently undulating or rolling, clothed with green forests, noble meadows, well cultivated fields of corn and wheat, and here and there snatches of level plain, over which the tall grass waves in the gentle breeze like mild billows upon the ocean. And like this the scene continues; stretching far away towards the distant Lake Erie shore. Of course there are now then patches of swamp land, and occasionally a rounded hillock rising a little above the general height of the others, or a deep gulley washed out of the rich alluvial soil by some stream during a freshet, perhaps ages ago; but the eye beholds no such wild scenery as it witnesses in the Alleghany regions of Pennsylvania and New York, and but few places are noticed where the land is not susceptible to cultivation.

The State contains an area of 40,000 square miles, being only about 6,000 less than New York or Pennsylvania. It is 333 miles in circuit, and its Lake Erie shore is 150 miles in length. In 1786, Benjamin Tupper and General Putnam invited the honorably discharged soldiers of the revolution holding land warrants in Ohio to proceed with them to the State, locate their land and form a settlement. "The Ohio Company" was at once formed, and on the 7th of April, 1788, a party of settlers, with General Putnam at their head, landed at the mouth of the Muskingum River, and commenced the first settlement of the

State, at Marietta. At that time the Shawnee Indians held possession of the best lands in the territory. Their leading chief, who was disposed to be friendly, was named Cornstalk.

In November, 1788, Major Styles, with twenty-five others, made the second settlement, just above Cincinnati, in the midst of danger, surrounded by a hostile band of savages. During their work upon a block-house they were obliged to labor with their loaded guns always in reach, and with sentinels constantly on duty. Two years later a colony of Frenchmen settled at Gallipolis, under the direction of the "Scioto Land Company." Shortly afterwards a settlement was made at Cleveland, on Lake Erie, and another at Conneaut, after which the State commenced to advance rapidly in population and wealth. In 1800 its population numbered over 45,000, and in thirty years more it contained nearly one million souls.

The early pioneer life of Ohio was one of struggle, trial and danger. Artful foes aroused a feeling of jealousy and hatred in the savage breast, and lured them on to murder the settlers. A general Indian war was soon inaugurated, and some of the bloodiest deeds ever recorded in the annals of savage warfare were committed. Commanded by barbarous chiefs, the savages pressed forward with vigor, carrying the torch in one hand and the scalping knife in the other; and for a time they threatened to overthrow all civilization in the state. But at length the brave General Wayne was sent against them with an army of 3,000 men; and on the 20th of August, 1794, they met, and a terrible conflict ensued. The whites were victorious, and the Indians being severely chastised were glad to enter into a treaty of peace. But it was not for long. Our second war with England breaking out, deceitful Tories fired the Indian's heart again, and aroused anew the latent spirit in his bosom—the spirit of revenge, plunder and blood. General Proctor commanded the British army in this quarter, and now his friend and ally appeared—the great chief Tecumseh. He inflamed his warriors to the highest pitch of desperation; and the horrible work they committed stamped Proctor's name with infamy, and clothed the fair State of Ohio in mourning. General Harrison's campaign in Ohio was one of momentous import, and filled with thrilling scenes and painful incidents. The massacre of the River Raisin, the siege of Fort Meigs, and the gallant defence of Fort Stephenson, will ever be remembered in connection with the history of this celebrated Indian war.

But the dark days like a dark cloud were destined soon to pass away. The American army was victorious on land and sea. Tecumseh was killed and his bands of marauding savages compelled to flee before the march of civilization; and as the hardy frontiersman sat, as it were, in the bosom of his family at night, before a bright fire that roared above the old fashioned audirons and leaped up the great wide throated stone chimney, sending a flood of mellow light over the rude apartment, where his better-half industriously rattled her knitting needles, and his flaxen haired children rattled their playthings, and laughed and chatted like a troop of overjoyed magpies, while the angry storm beat down upon the roof overhead, and the wintry blast roared like a hurricane in the darkness without, he felt the true happiness of home. He had earned it through sweat, toil and blood. The danger had all passed away, and in perfect safety he could sit down and caress his loved ones. When in the field and in the camp, how his anxious heart had bled for the safety of those he was forced to leave behind. Every new move of the enemy chilled his very soul with dread when he thought of the safety of those at home, and at the same time it nerved his arm to strike the determined blow—the blow that was destined to bring liberty and peace. And those at home, how their hearts had bled for him. He was away in the wilderness battling a savage foe; a foe relentless and without mercy. How that faithful wife anxiously watched, wept and prayed for the husband's safe return, the world may never know. Common danger cements the hearts of friends in everlasting affection. It has been bought with a price—it can never be effaced; and no doubt our forefathers' rude log cabin, with its rough stone chimney, was, on his return from war, more dear to him than the palace of the greatest monarch that ever lived. How few there are to-day that realize the true blessings of home. They are all engaged in the mad whirl of fashion, pride, and the scramble after monied wealth; the end of which is never reached. The monied aristocracy of our great cities are perplexed with constant care and troubles that the outside world knows not of; and though they may appear to take comfort in their luxurious surroundings, it is not that blissful state of happiness found in the household of the forest settler, with its yard of charred stumps, and tall hemlock surroundings, purchased through toil and danger. Such a home, abounding in health and genial good nature, where the primitive neighbors, though rough and plain in exterior, clasp the mutual hand of friendship and peace in unison like a band of brothers and sisters, is a prize to its possessor, the value of which is never underestimated.

But here we are, whirling through the depths of a great city. Beyond, the blue waters of Lake Erie stretch far away to the north, bounding the limits of vision. And yonder comes a steamer, puffing and blowing clouds of white steam from her tall smoke-stacks, while the water dashes from her paddle-wheels in fleecy showers of spray. Onward she comes, graceful yet noble in her movements, her brilliantly painted sides glistening in the rays of the noon-day sun. She is checking her speed; and in a few minutes later with the glorious stars and stripes waving from her flag-staff, and bells ringing, she moves slowly up to the pier. The loud hiss of escaping steam rings sharply in our ears as the ponderous locomotives pass

quickly by on the right hand and on the left and in every direction, some with trains and some without. Round houses and immense machine shops, with their long slate roofs, loom up near at hand. And farther back, beyond the line of moving locomotives and cars, and babel of railway machinery, above the forest of maples that adorn the streets, grand edifices appear to the view, with domes and numerous lofty spires reaching far skyward. Slowly we move on, up to the great Union Railway Depot, stretching along with an unbroken roof many hundred feet in length; and one of the largest and most elegant stone structures of the kind in the world. Upon the keystones at either end are beautiful emblematical designs, and portraits adorn the entrances. Over the main entrance, the portrait of Mr. Amasa Stone, who superintended its building, beautifully carved in bas-relief, looks kindly forth as if to welcome the weary traveler. "Cleveland," cries the conductor, "Junction with the Lake Shore and Michigan Southern Railway for the West."

In regard to size and commercial importance, Cleveland ranks as the second city in Ohio. By the New York and Erie, and Lake Shore Railways, it is 603 miles from New York, and by the Erie and Atlantic and Great Western roads, 627 miles; though by the route we have taken, including the circuit of the Oil Region, it is 666 miles from New York, being 48 miles from Leavittsburg, and 111 beyond Meadville. None of the cities we have thus far passed through approaches Cleveland in magnitude. Its present estimated population is at least 160,000. Previous to 1796, the ground was claimed by the Indians, and not a furrow had been turned or tree felled within the present city limits. Eighty years ago the first cabin was erected, and fifty-six years ago it was a mere post village of 600 inhabitants. The opening of the railway system, together with the lake and canal trade, suddenly worked a mighty change in the place, and it soon became filled with an enterprising and industrious multitude.

The city is mostly situated upon a beautiful plain, about 100 feet above the level of the lake, and is divided by the Cuyahoga River. Near the mouth of the river a commodious ship channel has been worked out, leading to the lake, along which the lake steamers may anchor in safety. Two noble piers have also been constructed, reaching far out into the lake many hundred feet, lighted at night by two lighthouses, one situated on the eastern pier, and the other on a little hill above, from which it throws a rich flood of golden light over the whole busy scene. The ring of heavy steam hammers proclaim the manufacture of iron, and the immense kerosene works are second only to those of Pittsburg. Leaving the manufacturing portion of the city with its long slate roofs, tall brick chimneys, clouds of smoke, and noisy clatter of whirling machinery, we ascend to the more beautiful part of the place, where everything is clean and neat, the atmosphere clear and free, and the scenery grand and delightful. Superior street is the leading thoroughfare of the city, and as we pass along amidst the moving multitude that constantly throng this great business avenue, we cannot help being impressed with a realization of the vast amount of business transacted. Near the centre of the city is the grand Monumental Park, ten acres in extent, situated upon a beautiful plot of ground, and appropriately adorned with maple and other shade trees. As we stroll along the cool and shady grounds, we come suddenly upon the elegant Italian marble statue of Commodore Perry. It is over eight feet in height, and stands upon a Rhode Island granite pedestal that rises twelve feet from the ground. The whole work cost \$8,000, and was finished in 1860. Among the more noted buildings of the city may be mentioned the new Methodist Church, on the corner of Erie street, the Case Hall, City Hall, Post-Office, and Custom House, near the Park, Trinity Church, etc. Passing over into Euclid avenue, we enter one of the most beautiful thoroughfares in the American Union. Noble mansions and imposing residences, surrounded by elegant yards, and shady groves and gardens of fruits and flowers line either side. The air comes to our nostrils loaded with sweet perfume.

Five miles from the city, by the way of this beautiful avenue, brings us to Lake View Cemetery, or the city of the dead. It is situated on an elevated table-land, 250 feet above the lake, where the view is unobstructed and splendid. It consists of 300 acres, and was first opened in 1870. As we walk along the richly decorated avenues, already lined in some places with rows of marble tombstones and elegant monuments, and note the flowers and shrubbery planted by loving hands in kindly memory of departed friends, our eyes moisten with sympathizing sorrow; for who has not lost some near and dear one, and followed them in mourning to the grave? And they, too, have planted flowers and dropped tears over that consecrated spot, where the last remains of that dear friend was laid. And yet, why should we mourn? It is not death eternal, it is only change. The body that has suffered pain, and agony, and death, at the separation of the soul, has gone to the grave only to change. We say it has gone to its eternal rest. And yet in the whole circle of nature there is no such thing as rest. All is change and action; constant and increasing. Should the works of nature cease their action, the universe would burst asunder. Therefore, while the world exists the body itself may, in one sense, be said to be eternal. It is well-known that the body is undergoing a constant change all the time, even during the healthy moments of our natural existence. The food we eat is constantly forming new material to re-build the wasted particles passed off in sweat, etc., so that in ten years at the farthest, not a particle of our old body remains. It

has been done gradually, and we noticed it not. Yet all is new. New bone, new muscle, new blood, new everything. At death it decays and returns to dust. It mingles with the soil and helps to furnish important parts in the life of vegetation, and this in turn furnishes the material for the formation of blood, and bone, and muscle of the animal or human body. Thus we see the body goes to the grave but to perform the offices prescribed for it by the Almighty hand that guides the destinies of worlds. Why should we murmur at the wise decrees? But the far more important part, the eternal spirit, the immortal soul, what of it? Your own conscience and theology will tell you. It has left the corruptible flesh and gone forth at the behest of the Creator, be sure for the best. Our lives are swiftly passing on, and soon shall our souls be summoned hence, and our earthly bodies laid in the narrow house like those who have gone before. And then who will cherish our memory, and plant flowers upon our grave? Some one, ay, some one.

But the sun is already descending in the west, and our time for viewing the beauties of the city is limited. Returning, therefore, we descend to the shore of the lake, taking a hurried survey of the United States Marine Hospital, and then make a flying visit to the Cleveland Medical College, the Public Library, etc., after which we repair to the Waddell House, one of the best hotels in the place, and retire early that we may get a good night's rest, for the journey on the morrow is to be long.

No. 8.—An Early Start—Over the Cuyahoga—The Cleveland Water Works—The Lake Shore—Swamps and Marshes—Rural Scenery—Toledo—Southern Michigan.

Rising early in the morning, we proceed to the depot in time to take the first fast train for the West. We find it on time, as usual, with its long line of beautiful yellow coaches, laden with human freight. Taking our seat upon the velvet cushion of a superb Pullman Palace Car, we await events. Presently a bright new locomotive issues from the great round house not far away, and glittering and flashing back the rays of the morning sun, comes on directly towards us. It is fired up to the highest pitch; and as the safety valve suddenly rises from the pressure, the sharp hiss of the escaping steam shrieks fearfully in our ears. As it approaches nearer we catch a glimpse of the hardy engineer, standing steadily at his post, with his hand on the lever and his gaze bent forward from the cab window. The sweat trickles down his cheeks, and his face and form, though somewhat coarse and rough in exterior, is filled with frankness and genial good nature within. And this is the man who is to hold the reins and guide the impatient iron steed that is to take us so many miles, like the wings of the wind, westward. A mighty responsibility rests upon his shoulders; for more than a hundred human beings are this day placing their lives in his hands. The time for departure is at hand. The conductor stands upon the platform, with one hand upon the iron railing of the car and in the other his open watch. The engineer, who has hitched his engine to the train, is looking back and patiently waiting for the forward signal. The conductor, who has given timely warning to all who would take the train to get aboard, closes his watch, waves his hand, and steps upon the car. A moment later we find ourselves moving rapidly through the city.

Dashing over the Cuyahoga River by a neat and elegant bridge, the instantaneous view up and down the river is very fine. Over the river, and down near the shore of the lake, are the Cleveland water works. The water is brought to this spot through a tunnel 6,600 feet in length, extending out directly under the lake. Being well filtered, it reaches the works in a pure state, and from thence is forced by two powerful engines to the beautiful reservoir, situated on a high bluff, west of the river, overlooking the lake, city, and miles of surrounding country. From here it is conveyed through pipes all over the city.

Leaving the outskirts of the city, we pass along the lake shore westward. Whenever we pass over favorable positions the view far out over the blue waters of Lake Erie is truly splendid. Steamers loaded with flour, grain and passengers, glide swiftly through the waters, graceful as the swan, forming one of the most beautiful pictures to be met with along the lake. Being on elevated ground, we can often see them as they sail away, far as the unassisted eye can behold, apparently growing smaller and smaller with each succeeding moment, until they appear but as a mere speck upon the ocean, and are lost to our sight in the dim distance. Others coming towards us appear to grow larger and larger as they silently approach, and by-and-by they come dashing past us almost with the speed of a locomotive, and with the water lashed to snowy foam all around their paddle wheels. The great structure is gently rocked from side to side by the billows, like the cradle of an infant. As she rushes past us we catch a glimpse of her gayly decorated sides, rails and doors, and of her merry passengers seated around upon deck, drinking in the splendid scenery along the shore. We are filled with admiration as we contemplate the great works the mind of man has wrought, and we long to ride on the rolling deep.

Occasionally an alder swamp, a little hillock, or a grove of timber, shuts out the view of the lake, and sometimes we run a considerable distance without seeing it. Generally, however, as we approach and pass the little mill streams, over the strong one-arched bridge, we can look away down the shallow valley, along which the creek meanders, lined with willows and alders, and here and there patches of flags, and sweet-scented

blue blossomed flowers, and behold the Erie waters in the distance. Thirteen miles from Cleveland brings us to Berea, where Cuyahoga or "Ohio grindstones" are made. Passing the unimportant stations at Olmstead Falls, Ridgeville and Elyrie, we come to Oberlin, thirty-four miles from Cleveland, and the site of a prosperous college, founded in 1834.

Beyond Oberlin the scenery becomes somewhat dull and monotonous. The northern part of Ohio is thickly sprinkled with marshes and swamps, alternating with patches of prairie and woodland, among which the railway winds. Now we are shut in by a wall of thick alders and willows, interlaced with an intricate web of climbing swamp vines, and with dark and muddy pools of stagnant water lying by the side of the road, rendered green by the spawn of frogs and the leaves of lilies, and anon we dash out upon the beautiful plain, along by the side of the dusty highway, and highly cultivated fields of grass, wheat and corn. Neat country dwellings, with front yards of flowers and trees, meet the eye, and noble school houses, painted white, with tidy green shutters, are noticed. The merry shouts of the scholars at play reach our ears above the roar of the train, and we wonder if we ever made so much noise in the world. Now and then we pass a little country church, standing among a group of buildings, or solitary and alone, its tidy white spire pointing skyward, and its little rural cemetery thickly studded with white tomb-stones. Those simple marble slabs tell their tale as truly and effectively as the greatest monuments we beheld in the Lake View Cemetery at Cleveland. Love and affection dwells in the hearts of high and low, rich and poor, alike. The man of millions may command the respect and admiration of thousands, but his monied wealth begets only love of itself, and after all it is found that the admiration of the multitude extends only to his houses and lands and property, and does not reach the man. But on the other hand his good deeds and kindly acts beget a love and affection pure and heavenly, extending far outward, beyond the family circle, and though he be poor and poverty-stricken in purse, a current of sympathy flows from heart to heart, and tears bedew the ground at his departure. And so it will ever be. Corrupt hearts and minds are reaching forth to grasp the corruption and vanity of the world; and in their insane passion after monied wealth they scruple not to torture the body and sell the soul. Girard, Smithsonian and Peabody were actuated by higher and nobler impulse. They gave vast sums for the purpose of diffusing knowledge among men, and their names have gone forth to the four quarters of the globe, as the greatest benefactors on earth. But the number of such noble minds are few. And yet, perhaps, there are more of them than the world is aware of; for the humblest citizen in the land who devotes his life to the good of suffering humanity, or who at death bequeathed ten dollars from his scanty store of fifty, for the advancement of the world, does just as noble a deed as the millionaire who bestows his two hundred thousand. He had the will, and he done in proportion as much as they. His memory is implanted deep, and enshrined in the hearts of his rural friends, who with sadness carried his ashes to the little burying ground, where they lie forgotten to-day. His every-day life has gained for him a living monument that the gold of California cannot buy. In regard to monied wealth death makes us all alike. "We brought nothing into the world, and it is certain we can take nothing out." Therefore let us build our own enduring monuments while we live, and when we die it will make no difference whether we are buried in splendor and magnificence in the cemetery of the city or the rude rural ground of the country; for it will not require imposing marble monuments to recall our memory, but there will be those who will plant flowers upon our grave, and cherish our memory for the good we have done.

Much of the scenery along the lake shore is noted only for its sameness. The margins of thick white swamps, with boggy meadows, are quickly passed, to be followed by waving fields of corn and wheat, groves of timber, snatches of prairie, with beautiful country scenes, and then marshes and willow bottoms again. And thus the scenery continues; alternating between dark and gloomy, and smiling and beautiful. Often in the autumn season, when the birch and willow are clothed in yellow and gold, and the early frosts are causing the many tinted leaves to rustle in the forest, a scene of unusual beauty prevails. The copious dews of the cool nights, being dissipated by the early morning sun, rise in dense masses, and roll off towards the lake in great fleecy clouds, grand and majestic in appearance. But we have already passed several stations beyond Oberlin, chief among which may be noticed, Wakeman, Norwalk, Monroeville, Bellevue and Clyde; and we now approach Fremont, 84 miles from Cleveland, and 750 miles from New York by the route we have taken.

Six miles beyond Fremont we pass the little village of Lindsey, after which we pass Elmore, Genoa and Milbury, thriving and industrious towns, supported by an enterprising class of farmers. Since leaving Monroeville our general course has been more northward; and it must be that the lake shore is rounding off in that direction. More elegant country residences now attract our attention; the roads are filled with carriages and neat vehicles, with fast horses and town-dressed people, and loads of hay, grain and vegetables are seen going to market, all indicating our near approach to another large town.

A few miles farther and we find ourselves entering another city. An immense number of railway switches and side tracks, with a multitude of moving locomotives, and a perfect city of freight cars now appear to the view. A moment more and we

are among the busy host; wondering how we can proceed among such a moving swarm of railway steeds and cars, and avoid a collision. Ponderous brick water tanks, and freight houses and machine shops meet the eye in almost every direction. Tall smoke-stacks and enormous brick chimneys rise above the iron works and railway manufacturing establishments, and the heavy jar of steam hammers and buzz of swift-running machinery fills the air. The great round-houses and ponderous railway buildings are rendered black and dingy by coal-dust and smoke, and the smell of kerosene oil pervades the place. Near by are the vast elevators for storing grain; with a line of freight cars constantly around them, some arriving with loads of wheat and corn from the West, and others being prepared for shipment to the East. A little farther back are beautiful blocks of brick and stone, thickly set along splendid streets and avenues, and here and there tall spires rise grand and high above all the surrounding scenery. The railway bridge across the Maumee River at this place is a strong and substantial structure; and the Wabash and Erie Canal affords many interesting views. The depot is a noble structure, with a spacious platform, and the telegraph office is entered by a legion of wires, the continual click of the manipulators and receivers fairly confusing the traveler.

And this is Toledo; the greatest railway centre between Cleveland and Chicago. It is 114 miles west of Cleveland, and by the route we have taken 780 miles from New York. Here is the terminus of the Toledo, Peoria and Warsaw, and the Toledo, Wabash and Western Railways, which together with the branches of the Lake Shore and Michigan Southern Railway, produce a very important station, where an immense amount of business is done. On the Fourth of July, 1805, an Indian Treaty was held at Fort Industry, within the present city limits, when representatives of five Indian tribes appeared and gave up their title to the "Firelands." Forty years ago it was incorporated and received its city charter. To-day it is supposed to contain 50,000 inhabitants, and is classed among the most noted grain depots of the western lakes. The view down the river is splendid and beautiful beyond anything we have seen for a long time. Headlands fringed with birch and willow project into the river and bay, and away below in the harbor numerous vessels are seen. We might make the tour of the immense locomotive and car factories, together with the great flour mills, breweries, etc., but it would require another day, and we have not the time to spend.

At this place the road branches; one division known as the air-line road leading westward across Northern Indiana, and the other running through Southern Michigan. We will choose the latter, it being the route most frequently taken by travelers, and traversed by nearly all the through-trains. Leaving Toledo we dash away to the westward, after having taken our last view of Lake Erie's waters, and ere long we pause at Sylvania, ten miles away. A little further on we cross the State line, and draw rein at Blissfield, in Southern Michigan, twenty-two miles from Toledo. Four miles farther on we pass the little station of Palmyra, and two miles beyond is the Lenawee Junction. Next we come to Adrian, on the right bank of the Raisin River, a flourishing little city with about 10,000 inhabitants, and several large mills and manufacturing establishments. It is the county seat of Lenawee County, and one of the most thorough business towns in Southern Michigan. The public buildings are neat and convenient, and many of the private residences along the shady avenues are splendid.

Dover Station is reached after a run of five miles from Adrian, and five miles more brings us to the little village of Clayton, beyond which we pass in quick succession Hudson, Pittsford, Osseo, Hillsdale, Jonesville, Allens, Quincy, Coldwater, etc., with nothing particularly striking or interesting. The scenery remains much the same as it was in Northern Ohio, before we reached Toledo. The hills and rolling ground has, however, dwindled away to a dead level, and only once in a while are our eyes greeted with the sight of a little bluff, or miniature sand hill. Marshes covered with reeds, sedges and flags, and long pools of stagnant water are occasionally passed, where the departing day is made melodious by the shrill notes of the locust and katydid, and the harsh croaking of myriads of frogs. Beyond are luxuriant fields of grass and grain, growing upon the rich black mould of the prairie, producing in abundance, far beyond anything we have yet seen.

Southern Michigan is a noted fruit region, and as we fly along we cannot help admiring the noble orchards of apple, peach and pear trees, bending beneath loads of luscious fruit. The neat little farm house near by, surrounded by a plain white picket fence, and with its front yard filled with flowers and shaded by a little grove of maples, bespeaks comfort for the inmates. A little further back is the garden, tastefully fenced around, and containing cucumbers and melons in abundance, rich yellow summer squashes, beds of onions and beets, rows of carrots, turnips, cabbages and potatoes, and all the garden vegetables and rich luxuries of the northern soil, sold at such enormous prices at the tables of the city hotel. Beyond are fields of tall grass and grain waving in the zephyr-like breeze like undulations of the ocean. The farmer, standing in the open doorway at the close of the day, gazes over his broad acres, resting in rural beauty, and loaded with the fruits of his honest labor, feeling a sense of noble pride that it is his own, free from mortgage, free from encumbrance, free from debt. He never felt it beneath his dignity to wield the ax or hold the plow; and by his own persevering industry he has produced that rural Eden from the forest wilderness and tough sod of the prairie. As he turns his head to view the flying train, we fancy

we see a face free from speculation and deception, and noble in its bearing. He toils hard in preparing the ground and sowing the seed; but it is worth all his trouble to see how grandly Nature comes forward with her strong arm to prepare for him a liberal harvest. Night and day, rain and sunshine, it is all the same; his crops are steadily marching forward to the harvest. He cuts his own grain and picks his own fruit, and he knows just what it is. He makes his own selection for his own use—he is always sure of good food at least—he is independent. Who would not be a farmer, then? People may scoff and sneer at him for his plain homespun appearance, but they cannot deny the fact that he is the bone and sinew of the land, the very foundation of society, for he feeds the whole world with bread. But the voice of farmers' boys calling home the cows, and the declining sun admonish us if we would behold the beauties of the country we can travel but little further to night. Passing three or four more stations we arrive at White Pigeon, 237 miles beyond Cleveland, and 120 from Chicago, where we leave the train to pass the night in one of the most beautiful regions of Southern Michigan.

No. 9.—Michigan—The Pinerias—Mills and Lumber Yards—Early History of Michigan—The Frenchtown Massacre—Through Northern Indiana—Marshes and Prairies—Around the Lake Michigan Shore—Through to Chicago—Railway Paraphernalia—The Great Grain Elevators—The Stock Yards and Scenery at the Cattle Markets.

Michigan is emphatically the "Lake State." Comprising nearly 1,100 miles of lake coast, along which the heaviest steamers may safely glide, its commercial advantages are probably unexcelled. It is naturally divided into two peninsulas—the northern, somewhat broken, cold and uninviting; the southern, rich, level and beautiful. In the northern part, along the Lake Superior shore, are the "Pictured Rocks," wonders in themselves, and further west, on the same shore, is the greatest copper region on the continent. Some parts of the northern and western shores of Southern Michigan are covered with dense forests of pine timber; and the demand for building materials from the treeless prairies of the West have lately filled the dark wilderness with an army of stalwart woodmen, and where a dozen years ago the silence of the sombre forest was only broken by the howlings of wolves or the scream of the catamount, the echoing ring of axes is heard from morning till night. In the winter, when the snow lies deep upon the ground, the pinerias present a lively scene. The forest resounds with the rude songs of the workmen, and merry shouts of drivers hauling logs over the crisp and frozen snow, and the puffing and shrieking of the laboring engines at the immense steam saw mills where gangs of huge circular saws are kept constantly running night and day. Clustered around the mills are rude offices, boarding houses, stables, and shanties, while long avenues lead off in every direction, closely hemmed in by masses of pine logs, immense lumber piles like the blocks of a city, and heaps of edgings and sawdust, sometimes larger than the mill itself. Above all, the great black smoke-stack towers as high as the limbs of the neighboring trees, held firmly in its place by long iron rods fastened to posts and stumps. The smoke and steam rising from its top becomes quickly condensed by the frosty air, and rolls away in great white, fleecy clouds. Near by, the waters of the great lake come swashing in upon the shore and rude pier in short, chopping waves, and the heavy steamers, loaded with lumber, and ready for their departure for the Chicago or Milwaukee markets, rise and fall with the dancing motion of the water like a steamship upon the ocean. Steam tugs are towing rafts and logs along the shore, and scores of men are at work handling slabs and edgings, wheeling sawdust, rolling logs, and piling boards and lumber. At twelve o'clock the steam whistle shrieks out over the forest, and the men file out from the mills and proceed to the boarding houses to partake of their dinner. Everything is worked according to an established system, and no time is wasted. The amount of lumber yearly shipped from the mills of Au Sable and the Michigan pine wilderness is astonishing.

The Mackinaw fisheries form another busy scene. A heavy business is done in this line, furnishing constant employment to hundreds of men; and the trout and white fish taken at this place find their way to all the principal American markets.

The first settlements in Michigan were commenced in the vicinity of Detroit and Mackinaw about 200 years ago. The early history of this State is filled with many romantic incidents and memorable adventures with the Indians. Especially was this the case during the war with England, from 1812 to 1815. Prominent among the Indian chiefs of this region were Pontiac and Tecumseh; already spoken of in connection with the early history of Ohio. The massacre at Frenchtown may be reckoned among the bloodiest scenes recorded in savage history. It was in the dead of winter, 1813. Word had been sent to the American army, then stationed near Detroit, that Frenchtown was in danger. General Winchester had been sent forward with a force of 800 men, and had succeeded in driving the enemy away. But the storm was yet to come. The enemy was reinforced, and on the 23d of January the brave band of patriots were met by the English Colonel Proctor, and the savage chiefs Round-Head and Split-Log, with a combined force of British and Indians, fifteen hundred strong.

At daylight the carnage commenced. The patriots fought bravely, but being overpowered by superior numbers, a portion of the right wing gave way, and endeavored to retreat across the river. One hundred of their companions, seeing their situa-

tion, leaped out from the breast-works and rushed to their aid. But it was, all of no avail. The odds were still too heavy against them. Over a hundred, who reached the woods alive, were immediately surrounded by a host of yelling savages, who butchered and scalped them without mercy. The deep snow was dyed to a crimson hue. At length, General Winchester was taken prisoner; and seeing the hopeless condition of his brave soldiers, he agreed to surrender them, on condition that they should be protected from the fury of the Indians; that private property should be respected; that the wounded should be conveyed on sleds to their destination; and that the officers should retain their side-arms. Colonel Proctor promised that these terms should be strictly complied with. Still, Majors Madison and Graves, with their little companies of frontier heroes, manfully held their position. Many of their brothers lay dead around them, and they realized that their case was desperate. But well knowing the treacherous disposition of the foe, they felt unwilling to surrender without additional assurance that they should not be massacred, and that they should have the privilege of burying their dead. The British commander solemnly agreed to all this, and they surrendered themselves prisoners of war. Now commenced a scene sickening in detail and horrible beyond all description. They were delivered into the hands of the savages, to be marched away to Malden. The dead were at once stripped of their clothing, and the wounded brained with the tomahawk, and their gory scalps shook insultingly in the faces of the living. The side-arms and clothes were torn from the officers, and the feeblest remonstrance was the signal for instant death. Butchery, plunder, and murder, reigned throughout the blood-stained camp. Many were carried away to be burnt at the stake, and inhumanly tortured, only as savage ingenuity can invent. The next day a band of war-painted savages returned to the battle-field, and raising their wild war-whoop, commenced an indiscriminate plunder of the place. Breaking into the houses where about sixty wounded Americans lay, under the promise of protection, they brutally buried their knives and tomahawks in their bleeding bodies, and then set the buildings on fire. Several poor wretches struggled to the windows and endeavored to escape; but they were seized and hurled back into the flames, to be burned alive, while their fiendish foes sang their songs and performed their wild war-dances around them. The ground along the march to Malden was strewn with mutilated corpses; and few, very few, ever reached the garrison alive. Such was the horrors of the Frenchtown massacre. And thus perished the gallant defenders of the border; sending a mourning pang to scores of wilderness homes in Ohio and Kentucky. And for this atrocious deed, Colonel Proctor was raised to the rank of brigadier-general in the British army. Brighter days were, however, in store for the settlers. Gradually they gained the victory and ascendancy over their foes, till, on the termination of the war, the Indian troubles ceased, and a prosperous morn dawned all over the West. Michigan was admitted into the Union January 26th, 1837. Its present population is about 1,500,000.

Its noble prairies are sometimes broken by stretches of scattering oaks and shrubs, termed "oak openings;" and its streams are fringed with timber and brushwood, where wild fowl is abundant. White Pigeon Prairie, near the junction of the White Pigeon and St. Joseph's rivers, is the most beautiful prairie we have yet seen. Leaving the station at this place, we soon cross the State line, and enter Indiana. Passing Middleburg and Bristol, we arrive at Elkhart, nineteen miles farther on, where we again unite with the Air Line Railway, which branched from the Lake Shore and Michigan Southern Road, at Toledo. Five miles beyond Elkhart we pause at Osceola; after which we pass the stations of Mishawaka, South Bend, Warren, Rolling Prairie, Laporte, and several others, all young and thriving business towns, supported mainly by the surrounding farming population.

The surface of Northern Indiana is almost a dead level; and the surrounding scenery presents but few objects to attract the attention. Much of the ground is low and wet, and often marshy bog-meadows and sloughs stretch away on either hand, for miles. As we gaze out from the car window, over the long lines of swamp covered with cold, damp mist and morning fog, we shudder at the thought of the fever and ague that must abound in this region, from the poison miasma of these chilling vapors, that at sunrise envelope the country with a winding sheet of white. As the sun dissipates the fog, the intervening prairies are seen to good advantage; often extending away in the distance until the earth and sky seem to mingle, without a single blue hill or peak to break the level on the horizon. Rapidly the scene changes, and we find ourselves shut in by long lines of alders and willows, with a sea of rushes and flags beyond; then another prairie, with its noble fields of wheat and corn, and neat little country villages, clustered around the busy stations, to be followed by little forests of pine, with an occasional sand hill, barren, or covered only with stunted juniper-trees. Anon we approach the shore of Lake Michigan, and soon after the view upon our right is nothing but one vast expanse of water; stretching far away to the north, beyond the limits of our vision.

Indiana was first settled by a French colony, at Vincennes, about the year 1690. Here, for a time, the little band of whites lived in a highly fertile region, surrounded only by the wilderness, isolated from the land of civilization, and friendly associating with the rude red men of the forest. The more noted tribes of Indians were the Delawares, Kickapoos, Miamies.

Pottawatomies, Shawnees, etc. Their principal town was destroyed by General Wilkinson, in 1791. It contained 120 houses, two-thirds of which had shingled roofs. One of the most noted historical events in connection with the history of this State, is the battle of Tippecanoe, November 7th, 1811; when the barbarous work of perfidious savages received its death blow, from the avenging arm of the white man. It was the finishing stroke; the rule of the untutored Indian in the West was at an end. On the 11th of December, 1816, it was admitted into the Union, and became one of the great sisterhood of States; and, although but sixty years have elapsed, it is already reckoned among the foremost members, and contains nearly 2,000,000 inhabitants.

Swinging to the north-west, our course lays along the Lake Michigan shore, with unvarying scenery, and ere long we cross the line and enter the great State of Illinois. Ascending along the western shore of the lake, with the beautiful waters dancing and sparkling on our right, we soon reach Englewood, and shortly begin to see evidences of an approach to a great city. Ere long the tall spires and steeples appear in the distance, and in a few minutes we find ourselves moving rapidly into Chicago. The great blocks of brick and stone, arranged in stately rows, and towering in such vast proportions, at first strike the mind with astonishment. Larger and more grand they appear as we proceed, and beautifully decorated steamers and dingy tug-boats, dash swiftly by upon our right. Every moment we catch instant glimpses far out along the streets and avenues we are passing, revealing a scene of activity and business comparable only to some vast work-yard of enterprise and human industry. Entering the company's grounds, we find ourselves surrounded, and as it were swallowed up, in a mighty host of railway paraphernalia. Acres of iron tracks glitter in the sun, long lines of heavily loaded freight cars are thundering past us on either hand, seeming to shake the solid earth with their weight, almost with the speed of lightning, causing us to involuntarily dodge back, as the sharp signal whistle screeches in our ears, and the glittering boiler flashes in our face. All that we saw at Cleveland and Toledo appears as if duplicated here, though on a more grand and magnificent scale. The freight houses, machine shops, round houses, etc., are larger, and more numerous, and the long ranks of cars form a city of themselves. At the great Union Depot, one of the largest and finest structures of the kind in the western world, the Lake Shore and Michigan Southern Railway terminates; and at this point the Chicago, Rock Island and Pacific Road commences.

Stepping from the car to the spacious platform, among a host of moving humanity, we make our way to the waiting horse cars, and prepare to take a flying visit to the more important parts of the city. It is divided by the Chicago River and its two branches; which, together with the ships and lake shore, produce a water frontage of nearly forty miles. Along the river shores are the enormous grain elevators, fifteen in number, with a total capacity for storing nearly thirteen million bushels of grain. Around these immense structures, a busy scene is presented; hundreds of men finding constant employment. Scores of steamships lie at the wharves, lading with corn and wheat for the markets at Buffalo and the East, and lengthy freight trains are continually arriving from the country, to empty their thousands of bushels, or are taking in a supply for the far-eastern markets. No one who has never visited any of these vast establishments can form an idea of the amount of grain shipped from this great central reservoir. Many of the heavy trains we saw near the depot, were booked for New York, Philadelphia, Boston, and other cities of the far Atlantic seaboard.

The river is spanned by no less than thirty-three bridges; and underneath, two grand tunnels have been constructed. The first of these, finished in 1868, is over 1,600 feet long, with a foot and double carriage way, and cost \$400,000. The second, completed in 1870, is 1,390 feet long, and cost \$549,000.

The Union Stock Yards, where the vast herds of cattle are kept for shipment, are probably the largest in the world. They embrace 345 acres of ground; on which are about seven miles of lanes and streets, over thirty miles of drainage, 2,300 gates, and an immense number of pens. The whole is said to have cost \$1,675,000. Here is room for 21,000 head of cattle, 22,000 sheep, 75,000 hogs, and 200 horses. On shipping days, when the yards are well stocked, a scene is presented such as is not often witnessed in America. Here are neat cattle from Illinois and Iowa, Durhams, Ayrshires, Devons, Alderneys, etc., beautiful Texans, and noble specimens from the plains of Nebraska. The manner in which this grand array of dumb brutes are crowded into narrow box cars and hurried away to the slaughter-houses of the East seems almost barbarous.

Another great branch of western industry, but little inferior to that of grain and cattle raising, is the pork business. The following from the well known pen of H. D. Emery, of Chicago, for the National Agricultural Bureau, graphically describes the hog market of the great western metropolis. "In the height of the hog season in Chicago, in the neighborhood of the yards, it would sometimes seem as though we had almost got into a 'hog heaven,' for, turn which way you will, in the cars, in the yards, in the streets, all is hog, hog; and their cowardly pointed heads, always turned earthward, grunting, squealing, and all showing a disposition to travel any way but the direction wanted. During one single day the past season the astonishing number of 122,825 hogs were received in Chicago, and some enterprising statistician has figured them up in this wise: 'Allowing each hog to measure six feet, and all strung in one

continuous line, they would form a hog-telegraph 140 miles long; and if each hog were made up into sausages, and all joined together, they would make 5,800 miles of bolognas—enough to girt the continent from San Francisco to New York, and give besides a small piece to grace the head of every beer barrel on the route.' "

No. 10.—A Day in Chicago—Pork Packing and the Slaughter Houses of the Metropolis—Its Rapid Growth and Present Appearance—The Burning of Chicago and the Fires of the Great North-West—Across the State of Illinois—The Garden of the World—Farming in the West—Rock Island.

The life and accumulated product of the business enterprise of the "Great West," centres and pulsates through Chicago. No westward bound traveller, desiring to witness the headquarters from whence the Eastern world receives its bread and provisions, should fail to spend a day or two among the stupendous elevators, packing houses, stock and lumber yards, warehouses, and vast business edifices of the western metropolis. The Mississippi Valley, ever famous as the Garden of America, dispatches the stock and produce of its laboring millions to this great ventricle, from which they are thrown out in a thousand directions to feed the hungry all over the world. To carry on the mighty work, no less than fourteen railway arteries centre here; and hundreds of swift-running steamers plow the waves of Lake Michigan night and day.

Ninety million bushels of grain, and over seventy-five million dollars worth of hogs and cattle, are shipped from this place yearly. Its lumber yards are among the largest on the continent. The immense steam saw-mills of the pineries of northern and western Michigan, and the other points more remote, pour their united products by cheap lake communication to this grand centre, to be distributed wherever needed, all over the treeless prairies. Scores of men are constantly at work in the spacious yards, piling boards and lumber. Over a thousand million feet have been received and handled in these yards in a single season.

Our common Eastern farmers generally think they have done a tolerably good day's work if they succeed in killing and dressing three or four head of swine, or a fattened bullock, for their yearly supply of meat. Perhaps they would be astonished to witness a day's work of a few men in the wholesale slaughter and packing houses of Chicago. The work has thus been described by an intelligent writer for the Agricultural Bureau:

"When all is ready the hogs are driven, some twenty at once, into a small pen with a fine grated floor. A man then enters, and, with a long-handled hammer, deals each hog a heavy blow between the eyes, which instantly drops him on the floor. After he has lain a few moments, another man enters the pen with a sharp knife and sticks each hog, the blood flowing through the floor, and being conducted by spouts to large tanks outside the building. While this is being done another lot is let into an adjoining pen and served in the same manner. The first lot, by this time having bled sufficiently, are slid down an inclined plane directly into the scalding tub or vat, made of wood, some six feet wide, twenty feet long, and three feet deep, the water in which is heated by steam pipes, and kept at a regular temperature; here they are floated along and turned by men at the sides until they reach the further end, where they are taken out of the tub by a simple contrivance, operated by one man, and deposited upon the end of a long inclined table. Two men stand ready and take from the back in an instant all the bristles that are suitable for the brush-maker and cobbler, depositing them in boxes or barrels for removal. Other pairs of men, standing on opposite sides of the table, divest another part of the hog of its coat, and so on through some eight or ten pairs of men, who each have a different part to perform in cleaning the hog, until it reaches the last pair, who put in the gambrel stick and swing it on a hook on an overhead railway; there it receives a shower bath of clear cold water, washing it clean from any particles of dirt that may remain, giving it at the same time a parting scrape with knives. It then passes along to a man who opens it and removes the large intestines. It then passes to the second man, who takes out the small intestines, heart, lights, etc.; the hog then receives a thorough drench of clean water, and passes to another man who splits the back-bone down. They are then taken from the hooks and borne to overhead road-ways, and hung up to cool; one man being enough to handle the largest hogs with ease. At this point a man loosens the leaf lard ready to be removed when cooled, which, together with the splitting of the back-bone before mentioned, helps very much to thoroughly cool the meat. The hogs are allowed to hang in this cooling-room, before being cut up, two days, when all animal heat is gone. Having now got the hog ready for cutting up, he is taken from the cooling-room, and carried to the room for this purpose, each hog being weighed as he is brought up, and his weight entered in a book kept for the purpose. Having been rolled on the block, one blow from an immense cleaver severs the head from the body; another blow severs the saddle, that is, the hind parts containing the hams; another lays it open at the back; another one for each leg; the leaf lard, having already been loosened, is now taken hold of with the hands, and instantly stripped out of the carcass. The remainder of the hog is then cut up, according to the kind of meat it is most suitable for; the whole cutting-up process occupying but a few seconds of time, two smart men having cut over two thousand in less than eight hours. The usual day's work, however, at this establishment is from 1,100 to 1,200 head."

What is known as *mess pork*, is the best in the market; and is only made from the sides of the fattest hogs. *Ordinary mess* is made from the sides of lighter animals; and *prime mess* is made from hogs weighing from 100 to 150 pounds, and is generally cut in four pound pieces, with the shoulders included. The lard houses, near by, are often a hundred and fifty feet in length by thirty-five or forty feet in width, with huge iron tanks, twelve feet in height by six in diameter, resembling steam boilers set upright, into which the leaf lard, head, etc., are thrown, and then subjected to an immense jet of steam, dissolving and separating the lard from the mass, when it is drawn off pure and unadulterated.

Such is a description of one of the numerous packing establishments of Chicago, which, during the packing season, furnish employment to hundreds of hands, and business for heavy railway trains continually. Leaving the more immediate business portion, with its noisy rattling and shoveling of grain, slamming of boards and timber, jar of heavy freight trains, shrieking of steam whistles, and bellowing and squealing of the brute pandemonium, we proceed back by noble avenues to the more beautiful parts of the city. The streets, eighty feet wide and six or seven miles in length, are almost as straight as a line can be drawn, bordered on either side by mammoth brick blocks, salesrooms, offices, and costly edifices, which deceive the eye, and appear in the level distance to approach so near each other as to admit only the passage of the smallest vehicles. As the city is situated on a level plain, rising only twenty-eight feet above the level of the lake, it cannot be seen to advantage except we ascend some of the numerous spires, or observatories. A balloon view, however, is the most splendid of all. The entire city then appears to the gaze, spread out like a vast map, in one grand panoramic view. The tall spires of no less than 180 churches arise in beautiful proportions in every direction. Gothic structures of marble and freestone, richly decorated in crowning magnificence; solid blocks of wood, brick, and stone; long ranks of brick machine shops, and iron and steel manufactories, with tall chimneys, rendered black and dingy by dust and smoke, are all taken in at a single glance. Away to the west, over miles of busy streets, among the pleasant scenery imaginable, is seen the stately white mansions of the suburban farmers, surrounded by groves of locust and maple. Eastward, the enormous freight houses, depots, elevators, and immense railway property, with blackened slate roofs, domes, and towers arise—with a legion of cars and a host of noble steamers at the wharves. Six splendid parks, comprising nearly 2,000 acres of ground, connected by a grand system of boulevards 250 feet in width, and containing miniature lakes and forests, artificial hills, arbors and summer houses, pagodas, rustic bridges, groves, and zoological gardens, make up the interesting scene. The music of some distant band connected with the grand open-air concerts of the park floats in low, melodious melody to our listening ears; while the sparkling waters of Lake Michigan flash back in our faces the brilliant rays of the noontday sun.

Such is a panoramic glimpse of the Chicago of to-day. Another such scene, teeming with life, business, and beauty, cannot be found west of the Atlantic seaboard. And yet it is only in its infancy. Less than fifty years ago it contained but twelve rude log houses. In 1832 the first frame house was built; and in five years afterward it became an incorporated city. The rapid settlement of Illinois filled the garden prairies with an enterprising host of eastern emigrants; and as the rich black soil developed an ocean of luxuriant grain, the great railway lines were pushed through to the rising metropolis, where an immense lake trade was already centering. Then came a swarm of humanity from the old world and the new. A mighty field of labor was opened up, and a solid stream of emigration rolled onward to the Lake City of the West. From that time onward, the sun of prosperity and progress continued to shine brightly upon Chicago. Its present population is probably over 400,000; and the time may not be far ahead when it shall be said to rival New York, the great commercial metropolis of America. And it is not yet forty years old! Such rapid advancement is unparalleled in the annals of history.

And now what shall we say about the great fire? It has gone down in history, and the world knows the result. Yet, perhaps, a few words may not be unacceptable, even here. The great northwest was ablaze with fire in a thousand places. No rain had fallen for many weeks; and the ground was parched and scorched, until it was as dry as a powder-house. A spark was sufficient to set the dried grass of the prairie in instant flames. The atmosphere was filled with smoke, and the sky, where it was not completely darkened, appeared of a copper hue, and the sun went down as though bathed in blood. Nightly the far horizon was lit up by the lurid glow of fire in almost every direction; and it was not without some apprehensions that the weary populace retired to rest on that fatal Sabbath evening of October 8th, 1871. All at once the loud and shrill alarm of Fire! Fire! rang out in fearful peals over the doomed city. People leaped from their beds and rushed into streets to behold the brilliant glare of the destroyer, bathing the sky with its fiery light. Chicago was on fire. It originated in a small barn, in DeKoven street, from the accidental overturning of a kerosene lantern (as it is supposed), and rapidly spread to the lumber yards in the immediate vicinity. The fire department hurried to the spot, but they arrived too late. A whole row of wood buildings, in which were stored quantities of oil, paint, varnish, and seasoned lumber, were in flames; and the heat was so great they could not approach them. A heavy wind now arose, and in half an hour the whole district was ablaze.

Now commenced a scene, terrible beyond description. The entire city was lit up to the glare of noonday; and a hundred thousand people were running wildly through the streets. Before morning the fire had assumed vast proportions; and resembled an immense sea of flames, hundreds of feet in height, whose roar seemed to jar the very ground. All was now uproar and confusion. The streets were filled and blockaded with boxes, goods, and furniture, and a perfect jam ensued. Vehicles crashed against each other, and went down in ruins upon the pavement; amid the curses of men, the screams of women, yells of terror, and howls of anguish. All day long the awful conflagration continued. The wind raised almost to a hurricane, and the night came again—a night of horror and agony, such as America had never witnessed. Great clouds of black, suffocating smoke rolled through the streets, and the constant crash of falling buildings hurled burning splinters and cinders in every direction. Noble, palace-like residences were reduced to heaps of ashes in an hour, and human beings who dared linger in the hope of saving their worldly possessions, met their death in the embrace of the roaring element, and found a grave in the ashes. But we do not wish to paint the horrors of the awful spectacle. They would fill a volume; and their recital would cause the soul to shudder. Many noble deeds were done, and self-sacrificing heroism displayed in every street. Other cities sent their fire departments to the rescue, as fast as steam power could carry them; but it was all of no avail. The atmosphere was heated and they could get no where near the flames, now roaring like appalling thunder, and surging aloft like the glowing outburst of some mighty volcano, reaching far out and striking down upon the splendid fire-proof structures, causing them to melt before their approach like wax in the summer's sun. Giving up all other hopes, a row of buildings far in advance of the fire were purposely blown up with gunpowder, the rubbish cleared away, and a storm of rain setting in, the mighty conflagration was stayed. Two thousand acres in the heart of the city had been laid in ashes, and 17,450 houses destroyed. 1,600,000 bushels of grain had been burned up, 200 people killed, and about 100,000 rendered homeless. The entire loss was \$190,000,000; and insurance companies were driven into bankruptcy in all sections of the Union. A generous people, however, all over the country, came to the rescue, and the business of rebuilding was at once commenced; and the only difference the traveller now notices, is that the city is built on a far more grand and magnificent scale than it was at first. Marble fronts, with glass and iron, have taken the place of wood and brick, and ponderous hotels have been erected covering entire blocks in area.

But we have already spent more time in Chicago than we intended, and we barely have time to catch a flying glimpse of the new Custom House, and Post Office, now being erected at a cost of \$3,500,000, and the Court House at \$2,000,000, to say nothing of the Douglass monument, the forty Artesian wells, some of which are nearly a thousand feet deep, and throw up over half a million gallons daily; and the wonderful water-works, by means of which water is brought from a point in Lake Michigan two miles from the shore, through tunnels from five to seven feet in diameter, and forced into a strong tower 130 feet in height, by four powerful engines, to be distributed all over the city, at the rate of 72,000,000 gallons daily. Proceeding to the Great Union Depot, we take seats in the cars, and ere long find ourselves rushing rapidly through the city, on the line of the Chicago, Rock Island and Pacific Railway. We have now reached a point 958 miles west of New York and 357 from Cleveland. By the route we have taken, we have travelled 1,023 miles.

Leaving the outskirts of the city behind, we soon arrive at Englewood, seven miles distant, beyond which we quickly pass Washington Heights, Blue Island, Bremen, and Joliet, where the State prison is located, and the site of extensive stone quarries. As we enter upon the noble prairies of Illinois, the scene opens grand and beautiful in the extreme; and we realize that we have entered the far-famed garden of the world. The hills, and swamps, and marshes, have nearly all disappeared; and a broad rolling plain, so beautiful in primitive nature, now rendered more lovely by the works of art, meet the vision in every direction. The tortuous windings of the railroads—ever so prevalent in the East, constantly keeping the car tilting and lurching to the right and left like the disgraceful reel of a drunken man—are all left behind; and we skim along over the pleasant surface in a straight line, like a bird on the wing. Here we may see the farming community and the scientific world marching hand in hand in one grand consolidation. Machinery and science does the work, while man guides and directs. Agriculture, the foundation and potent lever that underlies all science, and among the highest of human attainments, is here seen in all its glory. No rough and rugged rocks and boulders meet the eye, and the long straight furrow is turned, often a mile or more in length, over the level field almost as true and even as the surface of a lake, without grating against a single stone. The Eastern farmer, accustomed to labor and toil among the New England hills and the rugged mountains of the Eastern and Middle States, is astonished at the ease and beauty of agricultural labors in the West. The Illinois farmer, seated on his sulky-plow, drives over the field with all the ease and comfort of the Eastern gentleman in his carriage. In some places steam has been used for plowing; and there can be but little doubt that it will in the near future be used successfully, not only in plowing and tilling the soil, but in a hundred other branches of the Western art of agriculture. The hoe is scarcely ever thought of being carried into

The field to stir the rich black mould in the cultivation of corn; all is done with the horse and cultivator, and the crops that are raised are tremendous. The large dent corn is raised, and the mammoth stalks, twelve feet in height, are generally burnt upon the ground after the corn has been picked. Husking is reckoned among the heaviest jobs the farmer has to do; for, as yet, no successful machinery has been invented for this purpose, and the work has to be done by hand. A hundred acres of corn, yielding perhaps 10,000 bushels of ears, is no small job to husk; and yet there are fields here like this, furnishing employment to scores of men, far into the winter. Corn is so abundant that it is often sold for only a few cents per bushel, and sometimes it has been used for fuel. Few scenes in nature display more abundance and beauty than the cultivated prairies of Illinois. As we dash rapidly onward, through an ocean of wheat, and corn, and luxuriant meadow, we cannot wonder that the vast tide of emigration flowed so rapidly westward, and that the State has sprung forward so soon to enter the front rank in the American Union. A few years since these splendid prairies resembled vast seas of grass, with belts of timber marking the streams and water courses, and were the hunting ground of the Indian and the home of the deer and prairie wolf. Now how changed. Noble country mansions, with their surrounding outbuildings and orchards, and groves and parks of timber, with intervening fields covered with ripening grain, and pastures with splendid herds of cattle, make up the scene. Such is northern Illinois, the inviting home of the American farmer. But during this narration of prairie beauty, we have been passing westward at a rapid rate. Nearly a score of busy little stations have been passed by, among which may be named Morris, Seneca, Ottawa with its 8,000 inhabitants, La Salle, Bureau, Sheffield, Annawan, Atkinson, Moline, the great water-power of the northwest, and now we approach the wide rolling Mississippi, and pause at Rock Island City; 182 miles from Chicago, and, following our route, 1,205 miles from New York.

No. 11.—*Formation of the Great Valley—Over the Mississippi—Davenport—Iowa City—Busy scenes on the Prairie—Obstacles to farming in the West—Prairie fires—Des Moines—Across the plains of Iowa—Sunset scene on the prairie—Advantages of the Rising State—Council Bluffs—Over the Missouri—First glimpse of the Pacific.*

Here we are, where the "Father of Waters" rolls its immense tide along, silent and majestic, onward towards the ocean. And this is the heart of the Mississippi Valley—the great agricultural garden of the world. From the Alleghanies of the East to the far Rocky Mountains of the West, the rivers and streams converge toward each other, all to unite in the great parent stream. All the broad expanse, rich in alluvial soil and unbroken by mountain ranges, is particularly adapted to the highest attainments of agriculture. Such another region, with all the natural richness, beauty and advantages, exists not on the face of the terrestrial globe.

Undoubtedly, the time was once when it was all one vast inland sea, and the waves sparkled in the sun, and in the angry storm rolled in uninterrupted and majestic grandeur, from the towering Rocky Mountain range, to break their foaming crests upon the rugged summits of the distant Alleghanies. And this period was probably much less remote than many imagine. Certainly it was far later than the submerged period of the rest of the continent, else it would have been timbered, and the rich alluvial deposit, in a measure at least, worn away.

What must have been the force and power of that great convulsion that upthrew the continent, and rending the mighty barrier, let loose this world of waters. What an awful scene must have been presented, as the Almighty powers of Nature contended and shook the foundations of the solid earth. No man beheld it to tell us, and no history has recorded the great event. But the geologist beholds its evidence in riven hills, cleft rocks and broken ledges on every hand. The event has passed away, but its effects remain. Reason reads and imagination pictures the horrors of that fearful day.

The earth is changing all the time. Change has succeeded change, and from period to period, through all the dim and distant past. Chemical agents are silently yet powerfully at work; agencies in its constitution that must ever work on, until a point is reached when it must be overthrown, and a regenerated world of new beauty formed from the wreck and chaos by the ever present and all powerful elements of Nature, deep-seated within, and impregnating every part.

We are, doubtless, approaching another mighty convulsion, and another change of the world. All Nature proclaims the fact. It has always been thus, and while the world exists it always will. The very nature of the elements of which it is composed forbids its being otherwise. They cannot be tranquil. If they rest, all Nature dies. Depend upon it, Nature will bring order out of chaos, and such changes are all for the best. When Nature ceases thus to work the world itself will approach its final and everlasting dissolution.

When the great valley that we are now traversing was covered with water, a sediment of mud was formed on the bottom—in some places to the depth of eighteen or twenty feet; and this is what has produced the black, rich soil of the prairies. Seeds of plants and flowers floated like feathery balloons through the air from the distant land far away, and alighting upon the warm, mellow soil, sprung up abundantly, and covered the broad prairie with a luxuriant growth of vegetation. The seeds of forest trees, with no downy wings to carry them

through the air, fell in the streams and were floated down by the current from far above, in the timber regions of the North, East and West, and catching along the banks, to root and grow, to drop their own seed upon the soil, to spread and multiply, and cause timber belts to spring up all along the rivers and streams of the newly formed world.

And thus, reasoning from geology, was the mighty Mississippi Valley formed. In time, no doubt, had fires been kept from sweeping over the plains, it would have been covered with an immense forest. But man came on to claim the ground ere the work was accomplished, and turned this vegetable paradise into an Eden of Agriculture. Nature and art joined hands in unison, and the scenes we have witnessed is a fragment of the wondrous results in this development.

Now you ask if this is not the place for a young man from the East to go and settle down as a farmer. If you have capital in abundance it will do; but if you have nothing to begin with don't think of rising here any faster than you can in your native land. You can perhaps make a living here easier than you can in the East; but the best lands are already taken up, and they bear an enormous price. Interest is high, and you must remember that farm produce does not bring the price there that it does here; and in order to make the same amount of money you must raise and handle three or four times as much. The golden age for the primitive settler has passed in this State, and its best lands are beyond his reach. But we will not stop here. Come on, my friend, we shall reach a region by-and-by which the poorest laborer may obtain, and which is destined, ere many years shall have passed away, to rival and eclipse anything we have yet seen.

We have seen Illinois, and we realize that it is a noble State. Coal and iron are found in various localities; and the famous lead mines of Galena, in the northwestern part, are among the richest in the known world. It comprises 55,405 square miles, and a population of about 3,000,000 souls. The first settlement was made at Kaskaskia by the French, in 1720. A territorial government was established in 1809; and on the 3d of December, 1818, it was admitted into the Union.

Leaving the busy city of Rock Island, we soon find ourselves whirling along over one of the several beautiful bridges that here span the great river, reaching far across to the island of Rock Island, where a United States military post is established, and anon, extending on again, over the rolling flood of waters, to the Iowa shore. This grand double bridge is a magnificent iron structure, and cost an immense amount of money. No sooner do we reach the shore than we enter Davenport—one of the largest cities in Iowa. One of the most noted institutions of the city is Griswold College, founded in 1847, ten years after the first settlement of the place. Situated as it is, in the heart of a noted agricultural region, with all the advantages of an extensive railway intercourse and river navigation, it cannot fail in soon being numbered among the larger commercial cities of the West. The streets are numerous and well laid out, and an air of business pervades the place. It is 354 miles from here, down the river to St. Louis. The river scenery, covered with rafts, boats and most all kinds of craft, and the splendid landscape in the near vicinity, are particularly attractive. The present population, largely made up of Germans, probably numbers over 20,000.

The first station west from Davenport is Walcott, 12 miles distant; after which we pass Fulton, and arrive at Walton, 208 miles from Chicago, where the road branches; one line proceeding southwesterly to Leavenworth in Kansas, and the other across the State of Iowa to Omaha in Nebraska. Taking the latter route, we soon pass Moscow, Atalissa, West Liberty, Downey, and approach Iowa City, once the capital of the State, pleasantly situated along the side of a range of bluffs that here line the banks of the Iowa River. Its elegant streets are nicely adorned with shade trees, and beautiful parks and groves abound in the neighborhood. Less than forty years ago these broken bluffs were covered with the wild forest, through which the wolf and bear roamed un molested. Now it is a flourishing grain market, with an industrious population of many thousand. The old State House, which has been granted to the State University, is a Doric building, constructed of a peculiar streaked and spotted stone known as "bird's-eye marble."

Crossing the Iowa river by a splendid bridge, we dash away, past the bluffs and over the rolling prairie, past the thriving little stations of Oxford, Homestead, Marengo, Victor, Brooklyn, etc., almost unconscious of the rate of speed we are going, amid the unchanging scenery.

All that has been said of Illinois may be said of Iowa in duplicate. The same level prairies and rich agricultural region continues, and mile after mile the same unvarying scenery meets the eye. Broad expanses of prairie, with stupendous fields of wheat and corn, roll back in the view, far away to the limits of the horizon. The farmer of 160 acres sits in his door, and takes in every rod of his estate at a single view. In regard to size, level land is always deceiving, and a farm of the above size appears no larger than a lot fifty or sixty acres on the hillsides of Pennsylvania or Virginia.

What a panorama of human industry we are rapidly passing through! Near the stations or market places, the roads are lined with loads of grain, hay, and farm produce, and droves of cattle, sheep and hogs are almost constantly passing. Grain is planted, sown, cultivated, cut, threshed and cleaned, all by the aid of machinery; and all summer long the fields resound with the clatter and hum of reapers, mowers, seed drills, threshers and separators, etc. What would a one-horse thresher, such as

we often see among the farmers of the Eastern hills, do among the vast grain fields of the West? They could scarcely thresh the grain raised by a single one of the larger class of farmers in a whole threshing season. Here, four, six and eight horses are seen on a single machine, one following another in single file around a beaten circle, the driver cracking his whip from the wheel in the centre, while the sheaves are being thrown upon the long cylinder as fast as they can be handled.

Hitherto we have viewed only the bright phases of the West; but it must not be inferred from this that Western life has no shadows. From the herds of cattle constantly seen on the great natural pastures and the immense prairie meadows, one might think at first that this was an unexcelled dairy region. Such, however, is not the case. In most places the water, so essential to good butter making, is bad; and hence they can never compete with the famous dairy regions of the East, among the rugged hills where the grass grows sweet and nutritious, and the living springs bubble up from the rocks and stones with water cold as ice and clear as crystal. The beautiful herds of cattle raised here are generally placed on board the cars and forwarded to Chicago to fill the stock-yards there, ultimately to find their way to the markets of New York and the far East. Terrible tornadoes sometimes sweep across the country, demolishing houses, fences, destroying the crops, and dealing death and destruction in their track. There are no hills to break the force of the wind, and in the winter the cold stormy gales sweep the bleak plains with unresisting fury. Another inconvenience the Western farmer has to put up with, is the lack of timber. Lumber brings a high price, and it costs a great deal to build. Timber fences in some localities are almost entirely out of the question. Ditches, wire, and thorny hedges supply their place. But in some places no fences are attempted; a whole neighborhood clubbing together, and hiring two or three hands by the month to watch their cattle and keep them from their growing crops like the shepherds of the old world. The prairies are also likely to take fire, when the most disastrous consequences ensue. Indeed, the prairie fires of the West are the most dreaded visitation the settler has to contend against. He beholds the fearful destroyer approaching in a sea of flame, vast in extent, reaching out in an immense semi-circular line, and rolling in upon him as if to engulf him in the devouring element. In the night the scene is magnificent beyond all description. The whole heavens seem illuminated. The livid flames flicker and glare as they leap upward and plunge forward through the dried grass and reeds, while showers of fiery sparks and cinders are whirled about, filling the air in all directions. The farmer gazes upon the approaching midnight scene with awe and consternation. Hastily he plows a few furrows around his buildings, cuts the dried grass near by, drives his cattle into the enclosure, and awaits the result. The morning dawns, and the fell destroyer is near. The sun rises, and with the heat of the day it sweeps in upon him. Now comes the crisis and the tug of war. It reaches his waving fields of ripening grain, and in great sheets of livid flame it rushes over them like a whirlwind of destruction. The dark, suffocating smoke rolls in a dense mass over the little household. The lurid flames flash and glare through the sulphurous canopy like the red blaze from the cannon's mouth. The bursting and snapping of the burning reeds from the steam confined within the stems, resembles the crash of a regiment of mimic musketry; while the mad rush of the whirlwind of flame roars like thunder. Every member of the family is exerting every energy to save their home. They are blackened with cinders and ashes, and the sweat streams down their faces like rain. The roofs, stacks and yards are sprinkled and saturated with water hurriedly brought from a neighboring cistern, spring or well. Every one seems nerved to desperation. Blazing cinders are falling everywhere. The roof catches, the yard, the stacks. Frantically a bucket of water is dashed upon the burning stack, upon the little blaze in the yard, and a ladder being placed against the building, one of their number mounts upon the roof with the agility of a squirrel, the blazing shingles are quickly scattered far and wide, and the rent in the roof deluged with water. The others upon the ground rush wildly this way and that, with spade and hoe, to combat with the flames now constantly catching about them. The devouring element meets the plowed furrows, and its headlong career is checked. A moment it flickers and struggles in its expiring gasp, and then it dwindles down and dies out in smoke. Around the sides of the enclosure the wall of fire rushes impetuously on, surging around the further side, to reunite and sweep on as before. A blackened scene of desolation, with now and then a curl of thin blue smoke, and little whirlwinds of ashes bound the limits of vision from whence it came. Perhaps the farm buildings have been saved; but it is not always the case. Sometimes in spite of every effort the mad hurricane sweeps with unresisting roar across the feeble barrier, the heroic defenders are obliged to flee for their lives or are struck down by the heat, and everything is quickly dissolved in smoke, flame and ashes.

At length we approach Des Moines, the capital of the State, and a flourishing city of a number of thousand inhabitants. It is pleasantly situated on the Des Moines River, where it receives the Raccoon branch, and is destined soon to be an important city and shipping port. Fifteen miles beyond Des Moines we pass Boone Station, and seven miles further De Soto, followed by Dexter, Casey, Adair, Anita, Atlantic, Avoca, etc. We are now entering a region of country somewhat new; but its beauty remains undiminished. But the sun begins to decline in the West. Ah! who can paint the beauties of a sun-

set scene on the Western prairie? The departing orb of day sends his slanting rays athwart the level sea of grass and grain, shedding its effulgent golden rays over all, and bedecking the autumn-tinted leaves and rich mellow fruit of the orchard groves with brighter tints and rainbow hues. The hazy tint of the Indian Summer settles in a smoky garland around the horizon, and the thin lines of cloud in the still distant west are gorgeously painted in purple and gold. All nature seems clothed in universal splendor, as though departing day had brought one last effort to eclipse all its former glories. Slowly the golden orb sinks below the horizon, a dusky pall over-spreads the charming landscape, the glorious scene fades from sight, the bright stars of night twinkle in the clear blue firmament, the song of evening birds ceases, to give place to the harsh voice of the katydid and the low mournful sound of the cricket; the busy works of man are hushed, and all is still.

Gradually the scenery begins to change. The country becomes more thinly inhabited, and the artificial timber groves, old orchards and noble country mansions are left behind. The grand rolling prairie presents a more primitive picture, as nature formed it without the aid of man to beautify and adorn it. Now and then a swamp or timber belt breaks the dull monotony, but for the most part an uninterrupted prairie rolls far away in every direction. The country is, however, being rapidly settled with enterprising pioneers, and no doubt before the present century closes many of the little country stations that we are now passing will be flourishing cities.

Young men of ambition and enterprise seeking homes in the West, here is your stopping place. Here is your field of labor. Look at the advantages it presents, and calculate the result. Lying directly between the two greatest rivers in the Union, whose united waters furnish cheap transportation to St. Louis, New Orleans and the Gulf; surrounded by the flourishing cities of St. Louis on the south, Omaha on the west, Davenport, Milwaukee and Chicago on the east and northeast; on the line of the mightiest railway thoroughfare on the globe, the great American business artery from ocean to ocean, with branch lines leading to the greatest grain markets in the world—the very heart of the best agricultural region the eye of man ever beheld, and with a desirable climate, it *must* rise rapidly to the very apex of the grand pyramid of confederated States. Fate has already written upon the brow of the young republic—Fame. Land that can be had now for four or five dollars per acre, must in ten or fifteen years bring forty or fifty. But people must not think to live even *here* without work. There is no room even on these broad prairies for drones. It requires hard labor to subdue the tough wild-grass sod, but the reward is abundant. Come with hearts prepared to meet every obstacle with energy and enterprise, and the State of Iowa will soon take her proud position by the side of elder sister, Illinois.

For hours we pass through this delightful region. At length, however, a low line of bluffs are seen ahead, and soon we behold the mighty torrent of the Missouri, as its turbid waters roll on southward towards the Gulf. Passing through the enterprising town of Council Bluffs, we roll over the long and magnificent bridge, costing a million of dollars, and enter the City of Omaha, 449 miles from Chicago, and by the route we have taken 1,517 miles from New York. Here terminates the Chicago, Rock Island and Pacific Road, and here we catch the first glimpse of the far-famed Pacific Railway.

No. 12.—*The Westward course of Civilization—Nebraska—Omaha—The Pacific Railway—The Platte Valley—On the Plains—Lone Tree—North Platte—The home of the Buffalo—Arrival at Sydney.*

"WESTWARD THE COURSE OF EMPIRE TAKES ITS WAY."

The waves of emigration are ever rolling westward. From the fields of Palestine and Asiatic Turkey, where Nineveh, Babylon and Jerusalem once stood in magnificence and glory, the tide of emigration flowed westward through Arabia into Africa, and through the regions of the present Turkish Empire into Europe. A nation in the East falls, and a more dazzling nation arises in the West. Persia, once reckoned among the proudest nations of Asia, went down amid war and anarchy, while Greece arose from the dark forests of Southern Europe until the world stood amazed at its greatness. It, in turn, went down by dissensions and strife, to give place to its more illustrious successor—Rome.

Greece and Rome! They were the doorways that led from the ancient to the modern world. They rose in power and greatness until they had eclipsed everything the world had hitherto seen. Among their shining lights, Socrates, Demosthenes, Cicero and Cæsar, figured conspicuously. But they, too, fell in war and blood, and the cradle of eloquence and statesmanship gave place to their prosperous successors. The tide of emigration swept westward over Europe, and the shores of the Baltic and the Atlantic were reached. The Goths and Vandals disappeared before the march of civilization to give place to mighty nations.

For a time the broad expanse of the ocean retarded the westward march of emigration; but intelligence and education was coming to the rescue. Master minds were revolving great questions in their thinking brains, and at length in 1492, Christopher Columbus, daring wind and wave, ventured forth upon the trackless deep on a voyage of discovery. A new world was found, and genius and enterprise bounded forward with rapid strides. The tide of emigration set westward from the Atlantic shores, leveling the forest and dispersing the hostile savages



ON THE MARCH.

before its steady march, climbing the rugged Alleghantes, descending into the lovely valley of the Mississippi, and rolling onward over the turbid Missouri to the present dividing line between savage and civilized life. It has left in its track glory and greatness. It will not stop; but with the all-potent powers of education and science, it will push on, majestically climbing the lofty summits of the Rocky Mountains and the Sierra Nevada range, until it shall look down upon the placid waters of the Pacific. Then will our country, with its hundred millions of free, liberty-loving subjects, have attained a noble position, high up on the pinnacle of fame, where no nation on earth has ever stood before.

Omaha, the eastern terminus of the celebrated Pacific Railway, is near the centre of the Union. Less than twenty-five years ago its site was an uninhabited wild, and the buffalo and deer came unmolested to drink of the waters of the Missouri. What changes a few years have wrought. It now has a population of over 20,000, while Council Bluffs, on the opposite side of the river, is already a rapidly rising city of several thousand more. The streets are all beautiful and well laid out, and many of the buildings and blocks are very fine. A good limestone quarry is worked near the city.

Rising early, we partake of a refreshing breakfast, and proceed at once to the depot, prepared for a long ride across the plains. The train from the East is not yet in, and the westward train will not start until it arrives. The few minutes that we have left we will devote to a little stroll from the depot. The view up and down the broad Missouri is splendid. The bluffs across the river, and the long and magnificent bridge, form a prominent feature in the scene; while to the west the land rolls off in gentle undulations far away. Boats and timber-rafts move lazily down the stream, or are moored at the wharfs. Of course it does not present such a scene as Cleveland or Chicago, for the place is only in its infancy; but its central position on the main thoroughfare from ocean to ocean where it crosses the great river, affords for it a rapid and easy communication with the East, West, North and South, and bespeaks for it an early rank among the prominent cities of the Union. The company's round-houses, machine shops and railway yards are already laid out on a grand scale, and a business of no mean proportion is carried on. But the Iowa train is arriving, and we must be on hand. Ere we enter the car, we catch one more glimpse of the fair State of Iowa. It contains 55,000 square miles, and a million and a half of inhabitants. Its first settlement was made at Burlington in 1833, by a little band of emigrants from the Eastern States. A Territorial Government was established in 1838, and on the 3d of March, 1845, it was admitted into the Union. Nebraska contains 76,000 square miles, with a population of perhaps 200,000. It was admitted into the Union in 1866.

Having supplied ourselves with books and papers to while away the time during a long and monotonous journey, we enter the superb Pullman Palace car, and soon thereafter we set our face to the west, and leave the chief city of Nebraska behind.

The plan of the Pacific Railway was first brought before the public by Asa Whitney, in 1846. Four years he agitated the great project with increasing energy. He proposed to embark in the enterprise, and build the entire road, if Congress would give him every other section of land for sixty miles in width, thirty on each side of the road, throughout its whole course. This, by many, was thought too exorbitant, and they viewed with alarm the question of such wholesale disposal of the public lands. About this time gold was discovered in California, and the consequent rapid settlement of that State, together with the famous Western Explorations by Colonel Fremont, called anew for action in regard to the contemplated work. At length, in the spring of 1853, \$150,000 was appropriated by Congress for the purpose of surveying different routes, and six parties were organized and set forth. The next year three more parties were added, and \$190,000 appropriated for the continuance of the work. The surveys were thoroughly conducted in a truly scientific manner, and the mass of reliable information concerning the topography, climate, botany, zoology, and natural resources of the hitherto almost unknown regions of the far West, as given in the official reports, comprised thirteen ponderous volumes. In the autumn of 1853, the Union Pacific Railway Company was formed, and received its charter from Congress. Active operations soon commenced, and the iron track steadily penetrated into the wild Indian country. Mighty obstacles were met and overcome with unwavering perseverance. It was a herculean task, and month after month, year after year, an army of laborers toiled on. At length, on the 10th of May, 1869, the Union Pacific and the Central Pacific Railways united their tracks. The last spike was drove and the great work was done. The continent was spanned by the iron rail, and the mightiest national work ever erected on the globe was completed. Much of the way it cost \$90,000 per mile, and the 1,100 miles of the work, from Omaha westward, cost over \$82,000,000.

Four miles from Omaha we pass Summit Siding, and six miles farther on brings us to Gilmore. Papillion is the next station, after which we run fourteen miles to Elkhorn, where we view the noble Platte River, rolling placidly onward to meet its parent stream. Here we enter the great Platte Valley, through which our course lies during the long run of 400 miles. Clouds of fog roll up in great white, fleecy masses from the river on our left, and the dew upon the grass sparkles like fairy stars in the morning sunlight. Gradually the long line of

misty vapor rises, and is dissipated, and the unclouded sun shines down in golden splendor upon the noble prairie.

Ascending the Platte Valley, we soon pass Fremont, Ketchum, North Bend, Schuyler, Richland, Columbus and Jackson, and we are aware that we have thus early made a hundred miles west from Omaha. Houses and farms become more and more scattering, and we realize that we are passing the general borders of civilization. Dashing past Silver Creek and Clark's Stations, we arrive at Lone Tree, said to have been thus named on account of a single tree found standing there, in the midst of the prairie, isolated and alone, like a hoary-headed sentinel of a hundred years. A tiny seed was dropped there in that spot, perhaps, by some passing bird before the birth of the American Republic. Its roots spread rapidly in the warm, rich soil, and it grew straight, strong and lofty in solitude and seclusion, bidding defiance to the storms and tempests of a century. Could it but see and speak, what a history it would have to tell. It has long been the landmark for many miles over the distant plain, and how many times the elk and the buffalo have found shelter beneath its branches from the noonday heat of the summer sun. The Indian, too, has been there, and perhaps he has led his fair young bride of the distant forest to its cool and refreshing shade, there to count their beads and strings of wampum, and to bedeck their heads with plumes and eagle's feathers. Bands of Indian traders are sometimes seen near here, encamped or on horseback, but they are all friendly, as a general thing, and seek not to molest the whites. They approach the railroad with awe, and often a curl of the lip and an angry scowl will reveal their crushed and smothered feelings, for they well know that it has destroyed their hunting grounds and doomed the race.

Ten miles beyond Lone Tree we pass Chapman, then Grand Island, Alda, Wood River, Gibbon, Kearney, Stevenson, Elm Creek, and many more, which it would be tedious to mention. The scenery is almost changeless; far rolling prairie, with now and then a little swamp or wooded stream, with a neat trestle bridge across.

On the Plains! The very words sound familiar. How many times we have heard the sentence pronounced in connection with the overland route to the Pacific. Old hunters and trappers, who have spent their lives among the Indians and buffaloes roaming over this extensive region, pronounce the name as though it bore a charm inexpressible. It calls up in their minds remembrances and scenes of their past lives, thrilling and exciting. Encounters, battles, escapes and triumphs. It forms an endless and inexhaustible field for the writers of fiction and dime novels, and the imagination is stretched to the utmost tension in the vivid description of savage combats, hair-breadth escapes, impossibilities and thrilling scenes that never occurred. The world is full of them, and the westward-bound traveler who has read them looks over the boundless sea of grass and reeds almost with the expectation of seeing a band of hideous savages, with plumes, feathers and war panoply, and to hear their wild war-whoop, for he feels that he is passing over romantic ground. But he probably looks in vain.

The vast prairie now rolls away—far away, to where the sky and earth appear to meet and mingle like the ocean itself, and all seem swallowed up in the one immense primitive meadow of Nature. Looking ahead, we behold the iron track stretching far away in a straight line, the rails appearing to draw nearer and nearer together, until they almost blend in one, and are lost to the sight in the dim distance. The long line of telegraph poles dwindle down to mere stubble, and fade from the view. The smoke of an approaching train is seen far away even beyond the limits where the track can be distinguished. At first it appears stationary. How long the time seems ere we can discern its motion. And then how slow it appears to move. We watch its great rolling cloud of steam as it steadily approaches, apparently in perfect silence. Onward it comes, and by-and-by a low murmur like the sighing of pine tree branches in the gentle breeze is wafted to our ears from the distance. Louder and more intense it becomes, deepening into a hollow rumble, jarring the ground and vibrating the air, and then with the roar of thunder the cyclopean iron giant dashes past us almost with the speed of lightning. And now we realize that it has been rushing over the plain at this rate all the time. We have the same road to traverse. The scenery is decidedly dull and monotonous. The same wide extended plain, the same apparently boundless and treeless prairie bounds the limits of vision as it has for hours past, and will for hours to come. How extremely tedious must have been the old-fashioned mode of travel on this long overland route. Processions of long white canvas-covered emigrant wagons toiled slowly over the beaten trail, and encamped night after night on the prairie ocean. Wolves howled around them in the darkness, and prowling bands of hostile savages often lurked in the near vicinity. Elks and buffaloes, hundreds in number, daily crossed their paths, and slices cut from their juicy steak often helped form a meal that a king might have envied.

At length the sun settles in the west, and sinks below the horizon. The stars come out one by one, until the clear blue arch is studded with the twinkling host, and still we are dashing onward. An hour or two more and we arrive at North Platte, 291 miles from Omaha, and here for the night our journey terminates. Early morning finds us astride again, and after viewing the round-house and repair shop, denoting the division station, we take the train and resume our journey. Crossing the north fork of the Platte by a neat trestle bridge, we dash onward across the flowery plains. The following lines from the poet Bryant accurately describe the prairies of the West.

"These are the gardens of the desert, these
The unshorn fields, boundless and beautiful,
For which the speech of England has no name—
The prairies. I behold them for the first,
And my heart swells, while the dilated sight
Takes in the encircling vastness. Lo! they stretch,
In airy undulations far away,
As if the ocean in its gentlest swell,
Stood still, with all his rounded billows fixed,
And motionless forever."

But we have beheld their beauties for more than a thousand miles; we tire of their continual sameness, and long for the ever-changing hill and valley scenery of the East. As we approach the head of the Platte Valley the character of the surface begins to change. The rich Nebraska meadows, with tall grasses ever waving in the passing breeze, are left behind, and we enter a great natural pasture region, the home of the buffalo and prairie-dog. Alkali, Roscoe, Ogallala, Brule, Big Spring, Julesburg, Chappel, Long Pole and Colton, are one after another passed and left behind. Stations only in name, but which are long are destined to be thriving villages like those we saw in Illinois and Iowa. Neat residences and country mansions have been left far back, and with the exception of now and then a rude shanty, where the trackmen reside, no sign of a human habitation meets the eye. Occasionally, far in the distance, we behold immense herds of the buffalo and antelope quietly feeding on the rich grasses of their natural home. The puffing locomotive and the roar of the train arouses them from their peaceful pursuits, and they rush away over the plain in a dark moving mass, perhaps nearer the track than before. The scene presented is grand and majestic, and the beholder gazes upon the animated cloud with wonder and astonishment. Early in the afternoon we approach Sydney, a bustling little division station, with a round-house, machine shop, hotel, stores, etc., 906 miles west of Chicago, and 414 from Omaha. We have now traveled 1,931 miles since we set out from New York, and we gladly avail ourselves of the accommodations of the hotel, and put up again for the night, with the hope of beholding the towering peaks of the high Rockies ere the sun sets on the morrow.

No. 13.—*The American Bison—Bison hunting—First view of the High Rockies—Cheyenne—Indian Traders—Savage Life as it is—The Black Hills—Life in the Mines—Ascent of the Rocky Mountains.*

All Western travelers speak of the buffalo as the pride of animated life on the prairies, and they have justly dubbed him the "monarch of the plains." Properly speaking, however, the true buffalo is not an inhabitant of the Western World. It is a native of Africa and India. What is popularly known as the Western buffalo, is in reality the American bison. A glance at any natural history drawing will at once show the difference between the two animals. The dissimilarity in their horns is strikingly conspicuous. A set of horns taken from the formidable Arnee buffalo of India, are now in the British Museum. They are turned laterally, flattened in front, wrinkled on the concave surface, and each one is six feet three inches in length, and eighteen inches in circumference at the base. The bison has much smaller horns, more resembling those of the ox; but its long shaggy mane covering its head and shoulders, and its large size, give it a fierce aspect and formidable appearance. The largest specimens have been known to weigh over 2,000 pounds, and the skin when first taken off is so heavy that a strong man can scarcely lift it. They were once found all over the Mississippi Valley, as far east as the Alleghany range, and now and then one might have strayed as far as the Hudson; but civilization has gradually forced them back, until now they are only found in great numbers on the far Western plains. The movement of these vast herds forms a truly grand and exciting spectacle. Early travelers speak of them as darkening the plain almost as far as the eye could reach, and have sometimes estimated the congregated numbers at ten or twenty thousand. Sometimes the largest and strongest animals engage in desperate and deadly conflicts, when their loud bellowings of rage and anger as they rush to the onset, roll forth like muttering thunder, and the plain almost trembles beneath the shock of battle.

But the days of the bison are numbered. Soon will the last one fall before the rifle of the Western hunter. The Indians frequently kill them with the bow and arrow; indeed, a few years since it was their favorite weapon. Athletic riders, mounted on fleet horses, and trimmed in glittering beads and wampum, with long plumes waving in the breeze, and coronets of eagle's feathers surmounting their brows, dash boldly up to the prairie monarch, and discharge their unerring shafts deep into his side. So expert are they in the use of this rude and primitive weapon, that their aim is often as sure and deadly as that of the most experienced marksman with the rifle. Their feathered shafts are often sunk in the huge beast to the depth of thirty inches, and instances are mentioned by hunters where they have passed completely through his body, and fallen upon the ground beyond.

Another mode of Indian bison hunting near the rocky spurs of the mountains, is to surround the herd by a large number of expert mounted riders, and by loud shouts and wild cries and gesticulations, drive them frantically to some bluff, and crowd them over a ledge of rocks or high precipice. In this manner hundreds in fear and frenzy take the flying leap and are dashed to pieces on the jagged rocks below.

Scarcely less barbarous is their wanton destruction by the whites. Hundreds have fallen, to rot and fester on the plain, merely to satisfy the licentious passions of the marksman. And this they call sport. But few are now beheld by the traveler on the passing train, and the view of large herds is already becoming a rare occurrence, seen only at long intervals. The iron rail has destroyed his native haunts, and soon the last one will have disappeared. The Indian's richest hunting grounds will have become a thing of the past, and the industrious arts of civilization will be in full blast all over these wide extended plains.

Leaving the thriving little village of Sidney, we again set our faces to the westward. A run of nine miles brings us to Brownson, and ten miles farther on is Potter. Hundreds of diminutive mounds, the home of the interesting little prairie dog, are seen all along the line of the railway. The same rich rolling pasture lands continue, and the scenery is almost changeless. We settle ourselves comfortably in our cushioned seats, and drowsily pore over the columns of a book or newspaper, while the beautiful forenoon slowly passes away. Occasionally we are roused from our reverie by the quick excited cry of "Look! yonder's a buffalo," or, "Indians! Indians! there comes the Indians," and we leap to our feet to view the band of red hunters, sweeping along on their prancing high-mettled ponies, with crow's and eagle's feathers streaming from their head-dress. Perhaps they are on the chase, and a wild and exciting scene is presented. But the train pauses not for us to witness the sport, and they are soon left far behind, and rendered indistinct by the intervening distance. Again we resume our reading, wondering how much farther these pasture slopes and plains extend, and how much longer we must patiently wait before we come to more changing scenery.

About the middle of the forenoon we reach Pine Bluffs. Eleven miles farther on we come to Egbert, and twelve miles more brings us to Hillsdale. A few miles from Hillsdale a faint line like a low hazy cloud appears on the far horizon. It is the first glimpse of the snow-capped peaks of the Rocky Mountains. Gradually they become more prominent and their dusky outlines are more plainly visible. The cloud appears to rise higher and higher, and the whole range seems to be crowned with a succession of peaks and rounded summits. To the westward they appear blue and distinct, while away to the southwest Long's Peak, 14,000 feet in height, rises like a tall pyramid, prominent to the view. Far beyond this, where the cloud-like range sweeps away in the dim southern distance, and seems about to melt away in a thin, vapory haze, the Spanish Peaks of Southern Colorado appear. The other side of the car presents a scene little different. The same cloud appearing succession of broken peaks extends to the north-west till distance forbids the view. Far away to the north, among the farther limits of the vision, the faint line of the Black Hills looms up like some far-off storm cloud on the distant horizon. Passing Archer, twelve miles beyond Hillsdale, we arrive at Cheyenne, eight miles farther on, the largest place we have seen since we left Omaha, 516 miles distant.

Here we form a junction with the Denver Pacific Line, and the neat and extensive railway buildings, including round-houses and repair-shops, are at once conspicuous. In the company's yard many trains are constantly standing and being made up for transportation to the South, East and West, and the passing locomotives and switch-engines for the moment remind us of what we saw in the far East. Hotels, dwellings and stores are arrayed along neat streets, and the place has an air of business activity unequalled in the great wilderness route. Ten years ago its first buildings were being erected, and in that short space of time its population has nearly reached 3,000. Its central position, surrounded by the mining districts of Pike's Peak and the Black Hills, bespeak for it a prominent place among the cities of the far West.

Indian traders are frequently seen in the streets of Cheyenne, and sometimes they are encamped in considerable numbers just outside of the town. Travelers often visit them to witness the manners and customs of savage life. They are generally friendly and partly civilized, and they come to barter beaver and bison hides, etc., for tin cups, knives, hatchets, old clothes, jewelry, and various trinkets, especially valuable to the eye of the untutored child of the forest. They are now generally dressed in old clothes procured of the whites, and if one happens to get possession of a discarded old fur hat with a high crown, he struts about with all the dignity of a first-class dandy. For a few cents they will join hands and go through with the Rattlesnake and Greenhorn dances, and give the blood-curdling war-whoop as they go through with the mimic performances representing the savage mode of scalping their enemies on the war-path. The women, vulgarly denominated squaws, are commonly dressed in short frocks, richly trimmed and decorated with fringes, beads and feathers. Their voices are shrill and clear, and many of them are beautiful singers. They often come to the white villages to sell willow baskets, moccasins and work pockets, some of which are of the most splendid design, ornamented with fringes, tassels, shells and bead-work, beautifully arranged in leaves, flowers, clusters, and glittering stars and diamonds. Thus the rude savage has an eye for the beautiful and a taste for the finer arts.

Far to the north, beyond the sombre pine-capped summits of the Black Hills, we may find him in all his primitive nature. A tiny column of thin blue smoke curls up through the sighing pine branches, from the rude wigwam of sticks and birchen bark beneath. It is the home of the Indian hunter. Within

are his wife and family, perhaps preparing his noonday meal of succotash or corn and beans, in the primeval looking stone kettle, and in the corner lies his couch of bison skins, and his pipes, and feathered head-gear. The hunter himself is, perhaps, a mile or more away, gliding stealthily through the forest in search of game, or down the neighboring stream in his light bark canoe in pursuit of fish. Such is a picture of life as it is in its savage state. Away beyond here, among the still far distant northern hills, they have built their villages, and there their chiefs reside. There it is they have banded together, put on the war paint, and with rifle, tomahawk and scalping knife, set forth upon the war-path. There it is where they have crimsoned the Rosebud Valley with the blood of the gallant Custar and his brave command. The horrors of that dreadful massacre, which took place last summer (1876), are too terrible for recital. For a time, terror reigned around the settlements of the Black Hills country. But it was not for long. Our brave boys went forward to the rescue, and they are now in pursuit of the red-handed warriors. Be assured Custar's noble heroes will not go unavenged. The day of Indian massacres is about over. The sun of their glory wanes in the West. Their depredations will be met with such marked resistance that they will be swept away like autumn leaves before the tempest. The most powerful tribes of the present time are the Sioux, Blackfeet, Crows, Comanches, Apaches, etc. Among their most noted chiefs are Sitting Bull, Spotted Tail, etc.

The Black Hills have for some time been famous as a mining region. Hundreds of emigrants, gold hunters and adventurers are hurrying to this new Western El Dorado every year. Long trains of waggons proceed thither from Cheyenne every season. The settlements around the base of the hills are for the most part composed of rude cabins and shanties, ever the characteristics of the primitive mining town. Prospecting parties are occasionally seen stalking beneath the towering pines and along the rocky beds of little streams, in search of a favorable situation to commence operations. But little, however, is as a general thing made by mining. Of course there are cases now and then when a "streak of luck," as they term it, will make the fortunate miner independent, and he returns with a fortune realized in a few days. But such instances are rare. The common laborer most always comes out the best.

True wealth comes slowly—but honesty, industry and perseverance, with a contented mind, will not fail to attain it in the end. On the other hand, the gold seeker pursues wealth somewhat in the manner of the patrons of a lottery. He toils hard in sunshine and storm, and bears up under exposure, privation and danger, until his health and constitution are undermined, perhaps to find only disappointment and ruin at last. Blacklegs and sharpers often congregate in the mining districts, and hang around the saloons and tipping houses to practice their artful trickery and fraud upon the miners. Many of the miners themselves are coarse, vulgar, and rough in manners and appearance, composed of Mexicans, half-breeds, and emigrants from foreign countries, always armed with the revolver and bowie-knife, and free fights and robbery are of frequent occurrence. Vice and crime generally prevail to a considerable extent among the reckless portion of the mining community, and unsuccessful gold hunters often spend their all at the gaming-table, and then seek to drown their troubles in the fiery cup.

But we speak only of the dark phase of life in the Western mines. We do not mean to apply it to the general population of the Black Hills, or any other region. There are many true men there. Men with generous impulses and warm hearts, beating with honesty, morality and truth. These are the men that will make the State. The timbered wealth is looked upon by the permanent settlers as of greater value than the hidden treasure. They see the time near at hand when the vast treeless plains of Nebraska must be supplied with an immense amount of lumber. Then will the forest on the far border be a permanent source of untold wealth to its possessor. Indians are numerous around the Black Hills, and they often prove annoying to the settlers by stealing their horses and cattle. But despite every obstacle, good order must soon prevail. Steam mills and manufactories will arise, railroads will be laid, corn fields and orchards will bedeck the plain, the Indians and disorderly whites will flee as they ever must before the march of civilization, and the Black Hills country will become one of the proudest regions of the West.

Proceeding on our journey, we soon commence the ascent of the Rocky Mountains. The grade now becomes steeper, and the track winds and curves continually. Hazard, seven miles beyond Cheyenne, is the first station. Rocks and rugged hills make up the view. Before us the high mountain barrier rises in a succession of barren crags and cheerless granite peaks. The air is cooler, and as we gaze away up to the lofty summits, we instinctively draw our coats closer around our shoulders, wondering how the early engineers could have had the courage to lay a railway line over this stupendous range. Slowly we move along, winding this way and that, around sidling hills, across deep ravines and mountain streams, through heavy cuttings and rock galleries, now entering and rumbling through long snow sheds, erected to prevent vast accumulations of snow from blocking up the track or sliding upon the passing train, and anon we are out in the sunshine again, passing onward and upward, higher and higher.

The ponderous locomotive is doing its best here, and yet how slowly we are getting along. The telegraph poles set among ledges and crags of riven rock, appear to pass slowly by like,

silent sentinels on their wild and lonely beat. Every turn ushers in a scene of bold grandeur and picturesque beauty. Otto Station is eight miles beyond Hazard. The next station is Granite Canon, in the midst of a wild region, five miles from Otto. Bulford is yet six miles farther on. Much of this long ascent from Cheyenne is shut in by almost endless lines of snow sheds; but there are breaks once in a while, and the grand views so suddenly displayed are rendered all the more surprising and beautiful after our long imprisoned ride through miles of overarching roofs and timbers. But we are approaching the summit. The chilly air like a blast of winter howls through the open car window, causing us to shiver in our seat, and patches of snow on the mountain sides above us proclaim a high altitude. A little further on we reach Sherman, the highest railway station on the globe.

No. 14.—Views on the Rocky Mountains—Winter among the snow-capped peaks—The Laramie Plains—The Sweetwater Valley—The Western descent of the mountains—Wild gorges, tunnels, and rugged ledges—Trestle bridges and barren gravel banks—Entrance to Echo Canon—Magnificent scenery—Weber Canon—Picturesque Nature—The Wild Western Wilderness—First view of Great Salt Lake—Ogden—End of the Union Pacific Railway.

The Western traveler who has rode for many weary days over the plains and prairies, gazes with relief upon the wild and romantic scenery of the Rocky Mountains. The railroad, of course, traverses one of the lowest passes, and yet, where it crosses the summit, it is over 8,000 feet above the sea level. What a change in the climate has occurred in a few hours! Back on the plains, and through the lengthened Platte Valley, the heat of the long Summer's day was often oppressive. The sound of the grasshopper was continually heard among the grass, and in places the ground was parched and dry. Here, amid the stillness and solitude of Nature, rough and rugged peaks rise to a dizzy height in every direction, their bases clothed in dark foliage, which becomes stunted and dwarfed further up, and dwindles away to scattering bushes and thorny shrubs, to be succeeded by naked rocks and barren snow-capped peaks.

In the Winter the scenery is extremely wild and desolate. Pendent icicles hang from the frowning ledges, the sombre forest bends beneath the white, frozen mantle, while high up among the crags and rocks, where the sun shines cold and cheerless on the frozen, glittering surface, the wind howls and roars, and the light snow is ever on the march, like fleecy clouds of mist, being borne along and swept restlessly over the bleak summits to find rest only in ponderous drifts behind precipices and walls of granite. The scenery is indeed cheerless, and the traveler involuntarily shrugs his shoulders and hitches nearer the fire. Often, late in the Autumn, the train will pass all day through a rain storm on the verdurous slopes of the "Buffalo Country," and, ascending to the Rocky Mountain summit, find themselves blockaded by the snow.

Some of the foremost peaks that rise grand and majestic where we first enter the range, furnish the most splendid views imaginable. Those who have the patience and courage to make the ascent, behold the wide extended plain below spread out like an immense map at their feet. Here every characteristic of the great West is presented at a single view. Such a scene once witnessed becomes permanently registered in the mind, and can never be forgotten. Rivers and streams of water meander through the rolling prairies, sparkling in the sunlight like beautiful silver ribbons, fringed with belts of timber and long rows of bluffs and terraces, reaching up to the elevated plains above that roll away like the billowy ocean, waving with grass and flowers, and completely destitute of even a solitary tree. Back over the route we have come, we behold the railway winding far away through the lovely valleys and across the prairies until lost to the view. The locomotives and heavy trains resemble toy carts in the distance. North, South, and West, dark, rounded summits and blue mountain peaks bound the limits of vision. Doubtless in future years, when the rich pasture lands and level plains below shall have become thickly dotted with cities and villages teeming with activity and enterprise, mountain houses will be erected on these favorable sites that will be resorted to in Summer as is the famous house on the Catskills. Taking a last survey we turn our faces once more to the westward, and commence the descent to the Laramie Plains.

Near Sherman the train dashes over a deep gorge by a neat trestle bridge 650 feet in length. As we make the airy exit, we catch an instant glimpse of the dark, rocky depths, and the little silvery stream far down, 125 feet below. Nine miles beyond Sherman brings us to Harney. The next station is Red Buttes. Then follow Fort Sanders, Laramie, Howell and Wyoming. Ten miles beyond Wyoming we come to Cooper's Lake, in the midst of a scenery of wilderness and wild desolation. For some time we have been traversing the Territory of Wyoming. It formerly formed a part of Dakota. The census of 1870 showed its population to be 11,513, mostly miners. Only 338 acres of land was then improved within the limits of the Territory. The capital is Cheyenne.

We now find ourselves upon the great sterile plateau of the Rocky Mountains. The surface is cold, bleak and barren. Nine miles beyond Cooper's Lake we pass Lookout Station, and eight miles farther on is the solitary station of Miser. Nine miles more and we come to Rock Creek, lined in places by

steep and rugged bluffs, where no verdure meets the eye, and anon meandering through the narrow valley dotted with scattering fringes of cottonwood.

The Laramie Plains embrace nearly 7,000 square miles, mostly a cold and cheerless region, with barren, mossy tracts and stretches of sage brush and stunted shrubs. Far to the Northeast the Black Hills rise to view, like stern sentinels of the clouds. In the far West the dismal peaks of the Rattlesnake Hills appear, and on the Southeast are the long range of the Medicine Bow Mountains. Away on the Southern border, along the base of the mountains, dark forests of pine and fir exist, much of which is annually cut and floated down the Little Laramie River for railroad ties and lumber.

How the fierce winds of Winter sweep these cold and bleak upland plains! The snow then piles up along the knolls and ridges, and often huge drifts extend across the track. The heavy train struggles slowly yet bravely on, plowing the snow from the track and battling manfully with the freezing elements. Great clouds of white, fleecy steam roll from the smoke-stack and are left behind, as if to mark the course over the region of unfertile desolation. Perhaps the sun is shining; but the air is filled with clouds of drifting snow or keen particles of frost, and its rays are cold, pale and feeble. In the warmest months of Summer, when there is no snow upon the ground, the scenery in most places is wild and barren in the extreme. With the exception of a few favored places, nothing but sage brush, sterile soil, dwarfed plants, and now and then a few stunted shrubs and bushes meet the eye.

From Rock Creek it is fifteen miles to Como. Then follow Medicine Bow, Carbon, Simpson, Percy, Dana and St. Mary's. But few human habitations exist in this region, and these are mostly confined to the track men along the railroad. Their gardens often attest that even here potatoes, beets, turnips and other vegetables can with proper irrigation and attention be made to grow. Many fine views exist in the neighborhood. Just beyond St. Mary's Station the Sweetwater River emerges from a succession of deep and narrow gorges, and enters a pleasant, winding valley, fringed in places by little willow groves and bunches of elders, and bordered by rugged bluffs, altogether forming such a picture as the artist delights to paint.

The Sweetwater Valley is about 90 miles in length, and in many places bold and picturesque scenes are strangely mingled. Especially is this observable at its wild passage of the Granite Hills. A writer for the National Agricultural Department has truthfully portrayed the scenery: "Near the west end of this irregular range, for seven to eight miles, the river breaks through it and is closely walled in by lofty bluffs, with here and there a level plat of a few hundred acres of fertile soil. There is an open plain running around the south side of these bluffs several miles in width, which probably might be reached by a ditch twelve to fifteen feet in length. After passing through the gorge here the river enters a broad and beautiful valley, the upper portion of which is thickly covered with chenopodiaceous shrubs, the lower part bearing a tall, thick growth of grass. From a hill at this point, looking eastward down the river, the valley can be seen for twenty or thirty miles, while southeast runs a higher valley, which is crossed and dotted with elevated plateaus and flat-topped foot hills. The mountain which some distance east runs along the south side a short distance from this point, terminates westward, while from the southeast, running northwest, comes another range which forms the southern boundary of the plain. At this place the soil is rich and light, and, with irrigation, would produce good crops. In the vicinity of Hayden's Peaks the granite hills on one side and the bluffs on the other approach the margin of the river for a short distance, then recede in a circular sweep and again come together a few miles beyond, forming a beautiful circular area containing twenty to twenty-five square miles of rich and fertile bottom land, which, slightly elevated above the stream, can be irrigated without difficulty. Passing under the overhanging cliff of yellow sandstone through the gate-like opening of the little park first described, we enter upon a broad valley which continues without interruption to the 'Devil's Gate,' about four miles above Independence Rock." But without tiring the reader with further digressions, we proceed with our westward journey.

Eight miles beyond St. Mary's we pass Walcott, and six miles farther on is Fort Steele. We now pass in rapid succession Greenville, Rawlins, Summit, Separation, Fillmore, and soon arrive at Creston. Here is another spot like that we found on the Erie road, where a breath of air decides the fate of the raindrop. Those that fall a few feet to the westward of the dividing line find their way into the Pacific. Those that fall a few feet to the eastward meander over the Laramie Plains, to unite with the North Platte and break through the wild and gloomy pass of the mountains and continue down the long slope of the Nebraska plains, eventually to find their way to the Gulf of Mexico and to mingle with the waters of the Atlantic.

We have now traveled 188 miles since we reached the summit of the Rocky Mountains at Sherman, and we find the sun sinking in the western horizon. Latham, Wash-a-kie, and Red Desert are passed, and, as we approach the station at Table Rock, the dusky shades of evening begin to hide the distant features of the landscape. Stepping from the train we pass the night on the upland plain, and with the first dawn of morning we secure passage on the early passenger train for the West. Little especially interesting appears to the view, and we pass rapidly forward, reflecting on the tediousness of the

old overland passage by means of mules and horses, and on the only camp scenes night after night in the cold wilderness of the Laramie Plains. Bitter Creek, Black Buttes, Hallville and the Point of Rocks are passed ere the sun has fairly risen above the distant peaks. A run of twelve miles farther brings us to the station at Salt Wells, and after passing two more stations we arrive at Green River and approach the end of the great inland plain. The cold, alkaline region, with its long stretches of sage brush and sickly, frost-bitten vegetation are left behind, and we plunge into a mountain region abounding in wild and romantic scenery. Bryan, thirteen miles westward, is the first station. Passing by Marston, we soon leave the Territory of Wyoming and enter Utah.

As we go down the western descent of the mountains the scenery becomes more picturesque and exciting. The road crooks and winds among the everlasting hills, and the car is constantly tilting to the one side or the other as we sweep round the sharp curves and points of jagged rock at their base. New and interesting views are ushered in at every turn. Occasionally, high up on the steep mountain side, dark pine forests are seen, with here and there massive ledges of grey rock jutting out in bold relief, and forming immense precipices, surrounded by the sombre tree tops. In some places the steep hillside has been sliced down to procure a level space for the track, and the huge piles of blasted and riven rock attest the vast amount of labor and powder expended here. When the road was being built through this wild section an impressive scene might have been witnessed. The clink of hammers and drills resounded along the hillside and through the rocky corridors from morning till night, and the deep roar of the quaking blast rolled forth in thunder tones, shaking the ground and reverberating among the mountains like the sound of an earthquake. Now and then we observe sand banks and places where immense masses of earth have been taken to fill in for the track across a ravine or depression, and the old, rusty switch, long windrow of useless cobble stones and solitary shanty make up the picture.

Many fine trestle bridges are passed in this vicinity, where the train makes the airy dash across the formidable gulch, frowning with walls of rough, uneven rock, with here and there bunches of stunted bushes clinging to the almost perpendicular sides, while away below an angry, foaming brook plunges from rock to rock in its wild and gloomy pathway. The view is instantaneous, and then we are away again, swinging around the giddy curves and along the mountain side, past barren earth-slides and ledges beyond. At length rocky barriers suddenly make their appearance directly before us, as if to effectually bar our farther progress. But the train pauses not, nor turns to the right or left. Instantly we find ourselves buried in the depths of profound darkness. The hollow rumble of the train sounds fearfully in our ears. As we emerge from the solid rock tunnel a flood of light flashes suddenly in our faces. It seems as though it were never so light and beautiful before. We have been but a few moments in our passage of the rocky dungeon, and the rumbling of the train still rings in our ears. All nature seems to glow in the warm sunlight, and every spot where vegetation grows seems suffused with glory. Anon we reach another dark passage, and the same scene is repeated, and so on until we have passed no less than five tunnels ere the long descent is accomplished and before we reach the Valley of the Great Salt Lake below. But the sun is again settling down in the western sky, and the long, dark shadows of the mountains reach far out across the narrow valley. Nearly all day long we have ridden through ever changing mountain scenery. Since we entered Utah we have traveled nearly a hundred miles, passing Granger, Church Buttes, Carter, Bridger, Piedmont, Aspen, Millis and Evanston. Another day is added to our western travels, and we are 190 miles from the elevated plain where we set out in the early morning. The mountain tops are already tinged with the golden rays of the departing orb of day as we enter the little station at Wahsatch, and, leaving the train to pursue its onward course, we prepare to pass the night comfortably here, well knowing that some of the grandest scenery of the entire Pacific Line is but a few miles ahead.

The dawn of morning finds us astrid and sauntering leisurely along the track. The sun rises above the eastern hills—above the towering Rocky Mountains, and patiently we wait and listen to catch the sound of an approaching train. Perhaps it is behind time. Still we wait in expectation. An hour passes away and we fancy we hear its roar descending from the distant hills. Louder and louder, and then the sharp shriek of the steam whistle rings deafening through our ears as the iron horse moves slowly and majestically up to the little platform. A vacant seat is soon supplied with an occupant, and we are away like the wind. Castle Rock is eight miles distant, and here we enter the famous Echo Canon. Everything we have passed before is eclipsed by the wild grandeur of the scene at once presented. The road winds through the narrow valley with many crooks and curves, while stupendous walls of serried rock and extensive earth slides rise to an awful height on either side. The thunder of the passing train rolls with prolonged roar through the frowning passage and echoes sharply from rock to rock and crag to crag until our ears are almost stunned by the mighty reverberations of sound. Casting our eyes far up the almost perpendicular barren mountain side, we behold black cavernous ledges rising rank above rank, until bleak, sterile and snow-capped, they appear to pierce the clouds. High up among the eternal walls of rock an occasional

dwarfed pine or stunted cedar has taken root and lifts its solitary branches far above the scene of desolation. Sometimes the eagle builds her nest among the lofty and inaccessible crags, and often, as the roar of the approaching train breaks like distant thunder upon her listening ear, she darts from her eyrie with piercing screams that echo loudly and strangely through the winding, rock-cased valley. Fifteen miles from our entrance into this wild gorge finds us winding into Weber Canon, where a magnificent scene of towering, rocky grandeur is displayed, not inferior to the wildest scenery we have yet witnessed. The sublimity of the view strikes the beholder with awe and wonder, and makes an impression long to be remembered.

Devil's Gate is twelve miles beyond. Crossing the Weber River by a bridge 78 feet above the foaming torrent, where it dashes with fury and impetuosity through the fearful gorge below, where the view of frightful slippery rocks causes us to recoil almost with a feeling of dread as we think of the terrible consequences of an accident that might happen here, we enter upon a more beautiful country, and ere long the sparkling waters of the Great Salt Lake appear in the distance. Passing Uintah we approach the busy little station of Ogden, near the head of the lake, and move slowly up to the depot, near the round houses and machine shops, and where trains are in waiting and switch engines busy moving cars and preparing trains for transportation to the East and West. Here we see the last of the Union Pacific Railway, having followed through its entire course of 1,032 miles from Omaha, and here the Central Pacific Line commences. Here, in the lovely Salt Lake Valley, we pause for the day, having traveled 516 miles over the Rocky Mountains from Cheyenne, 1,525 miles from Chicago, and by the route we have followed, 2,549 miles from New York.

No. 15.—The Mormons—Joseph Smith and the History of the Mormon Bible—Organization of the Mormon Church—Emigration to Ohio—Persecution—Removal to Missouri—Driven from the State—Settlement at Nauvoo, Illinois—The State aroused—Death of Smith—Brigham Young—Further persecution—The long journey through the wilderness—The Home of the Mormons—Westward—On the last railway line—The Great American Desert—Sage-brush and sand hills—Entrance to the Humboldt Valley—Arrival at Elko.

The Great Salt Lake is a clear and beautiful sheet of water, 126 miles long and 45 miles wide, nestling quietly at the foot of ranges of lofty mountains, and surrounded by one of the most charming valleys earth affords. Here is the kingdom of Mormon, and near the southern shore of the lake is their city and temple. A railroad connects the place with Ogden, 32 miles distant, and there forms a junction with the great Pacific lines.

Perhaps a few words concerning this strange and peculiar people at this point will not be unacceptable. Something over fifty years ago, an illiterate young man named Joseph Smith lived near Palmyra, in the central part of the State of New York. At an early age he exhibited strange ideas and remarkable traits of character. Believing somewhat in the efficiency of divining rods, charms, and incantations, he became a money-digger, and, in company with others, explored mounds and other diverse places in search of hidden treasure. It appears, however, as might have been expected, that their labors were unsuccessful. His field of operations extended along the Susquehanna River, and many were his dupes who foolishly expended their time and money only to drink the dregs of disappointment and mortification.

For some time he had a strong belief in visions, and more than once he declared he had received revelations from heaven. At length, while praying for light and spiritual guidance, as he asserted, two angels appeared to him and made the announcement that he was God's chosen apostle and prophet to establish the new religion and preach the true gospel to an unbelieving world. A few days elapsed and another angel appeared, clothed in glorious raiment, and with countenance bright and dazzling as the lightning, announcing himself as a special messenger from the throne of God, to reveal the spot where the golden Mormon Bible was concealed. It was the evening of the 21st of September, 1833. The next morning he was visited again by the divine messenger, and commanded to go to the hill of Cumorah, only about four miles from Palmyra, and unearth the sacred book of the new religion.

Repairing to the spot, according to the direction of the angel, he soon came to a strong, air-tight stone box, the corner only of which was visible, having been washed bare by the storms of a thousand years. Within he found three short pillars, upon which lay the sacred oracles of the Most High, while underneath, upon an ancient appearing breast-plate, was a bow like a pair of spectacles, with two beautiful stones clear as crystal set therein. These he was to look through in making his prophecies and disclosing the hidden future, and were said to be identical with the Hebrew Urim and Thummim. The youthful prophet stood gazing upon the wonderful objects with awe and mute amazement. Suddenly the familiar angel came, and the brightest vision of his life took place. The windows of celestial beauty were opened, and all the glories of heaven stood revealed. A moment later the Evil Spirit passed slowly by, followed by his long black retinue of misery and wickedness. And then, after refusing Smith the golden book until the "fullness of time had arrived," the angel vanished, and the young seer was alone.

Four years passed by, and at length, on the morning of the 22d of September, 1827, he received the long-sought treasure. The leaves, or plates, had the appearance of pure gold, seven by eight inches in size, forming a volume about six inches thick, held in place by three rings. Erecting a screen in an inner room, he retired behind it, put on his crystal spectacles, and proceeded to translate its mysterious hieroglyphics, while one of his dupes sat on the other side, hid from view, to write as he might dictate, for it had been cunningly declared that no man but the chosen prophet could ever behold the book and live. The written manuscript, pretending to give the ancient history of the American Indians, claiming that they were one of the lost tribes of Israel and the descendants of Joseph, together with many good moral maxims, was soon delivered to the printer, and the Mormon Bible was thrown upon the world.

Eloping with the daughter of a respectable family of Harmony, Pennsylvania, who became the first Mormon wife, he settled near his father's residence, and entered upon his religious work with new zeal and ardor. On the 6th of April, 1830, he organized the first Mormon church at Manchester, Ontario County, New York, with 30 members. Persecution commenced at the outset. Sidney Rigdon, Oliver Cowdrey, and Parley B. Pratt joined the faith, and being educated and active, became efficient co-workers in the Mormon cause. They proceeded to Kirtland, Ohio, where they soon gathered over a thousand converts around them. The arrival of Smith with his little band of followers, was hailed with every demonstration of joy. He no longer placed an oval "look stone" in his hat and buried his face therein to read the future, as had once been his custom when seeking for hidden treasure; everything was revealed by special revelation. Hundreds flocked around them to hear the strange doctrine, many to become converts and remain, and many to go away and join the army of persecution.

Opinion waxed warm against them. By special revelation, they were ordered to migrate to the far West. Crossing the Mississippi, they penetrated to Independence, Jackson County, Missouri, 300 miles beyond St. Louis. Missionaries were sent out in every direction to gather the saints to the New Jerusalem, and the organization soon became strong in numbers. Persecution followed, and soon opposition was far stronger here than it had been in the East. At length the peace of the State was threatened, when an exasperated and armed force drove the entire host, 12,000 in number, to the western banks of the Mississippi. They could live in peace no longer there, and they hastily migrated to Illinois. Settling at Nauvoo, and calling in the saints from all directions, they organized anew, and commenced to build a temple. A short period of prosperity and peace now occurred; but it was only the lull before the storm. Civil dissensions and disputes arose among them, and ere long others besides the prophet declared that they too had received revelations from heaven, and among other things, the monstrous authority for one man to have several wives. Rumors of immoral doctrines and practices spread throughout the State, and a newspaper was established at Nauvoo to expose their crimes. By the order of Smith the printing press was demolished and the materials scattered. Warrants were issued against Smith and seventeen other offenders, and officers sent to arrest them. They were, however, overpowered by the Mormons and driven from the city. The people now resolved to take the matter into their own hands, and, collecting around Nauvoo, they threatened to lay the place in ashes. The Mormons fortified the city, raised a legion of armed defenders, and prepared to resist the power of the State. The flame of civil war seemed ready to burst forth. The peace of the State was menaced. The Governor took the field in person. At length the Smiths surrendered themselves as prisoners, and were confined in Carthage jail, charged with treason. On the evening of the 27th of June, 1844, an excited mob overpowered the guards, broke into the jail, and the prisoners were shot.

Thus perished Joseph Smith, the Mormon founder, at the age of 39 years. That he was an extraordinary man, no one can doubt. He understood human nature almost to perfection, and he seemed to possess the peculiar power of governing the minds of others and making them conform to his desires. His power for promoting good or evil was therefore immense. On the death of Smith, Brigham Young took the lead as prophet, priest, and king. By special revelation they were now ordered to the wilderness of the far West, and forthwith the emigrating host set forth. A few remained to finish and dedicate the magnificent temple, in order to fulfill a former prediction, and then they too abandoned it and set their faces to the westward to join their journeying brethren already on the distant plains. For many long and weary months they wandered through the wilderness and over the Rocky Mountains like the Children of Israel in the march to Canaan, till at last, tired and footsore, they looked down from the peaks of the Wahsatch upon the plains of Deseret, around the Great Salt Lake. It was the afternoon of the 20th of July, 1847, and the golden rays of the setting sun clothed the lovely valley in celestial glory. It was the Promised Land. Here the weary pilgrims established their settlement, in the land of the grizzly bear and perilous savage, far from the abode of civilized man, declaring it to be their everlasting residence, where they might rest in peace, free from persecution and strife.

Numbers from distant lands flocked thither to join them, and ere long the settlement rose rapidly in wealth and population. In 1850 a territorial government was established, and Brigham Young was appointed Governor. In 1857 they were

accused of robbing overland emigrant trains, and President Buchanan sent an army against them; but, happily, the trouble was amicably settled without bloodshed, and many times since has the exhausted traveler had occasion to rejoice in the kind hospitality of even Mormon civilization, in the midst of the far-reaching wilderness.

The city is laid out on a grand and extensive plan, and the streets and squares are especially fine. The famous temple is a magnificent structure, peculiar in formation, the most beautiful and striking object in the city, ranking among the greatest works of art in America. Stores, factories, and workshops, with tall chimneys, where all the wants of every day life are fabricated, rise in every direction. They rely not on their neighbors for necessities; they are a little world within themselves. Civilization is gradually pressing westward, and ere long they will probably be again surrounded by Gentiles. Then again will the question of toleration be raised. Our nation is free. All shades of political and religious opinion are fully allowed. It is to be hoped that this organization, numbering over 200,000 members, with so vast a power for good or evil, will peaceably conform to the laws of the country. Reason, judgment and education may yet root out their erroneous ideas. No persecution should ever be allowed simply on account of religious belief, but the barbarous practice of polygamy will never be tolerated.

Many beautiful valleys wind away in different directions through the Salt Lake Basin, some of which afford splendid views. Ogden Hole, on Ogden Creek, is a beautiful park fifteen miles long by seven wide, surrounded on all sides by the lofty peaks of the Wahsatch Mountains, down which hundreds of little brooks of crystal clearness descend to water the lovely plain. At Ogden we enter the splendid silver palace cars of the Central Pacific Railway, and soon leave the station behind to fly westward on the last railroad line of our journey.

Bonneville, ten miles distant, is the first station. With more than the speed of the race-horse we dash along the north shore of the lake past the little stations of Corinne, Blue Creek, and Promontory, 53 miles distant, where, on the 10th of May, 1869, the Union Pacific and Central Pacific Railway Companies united their tracks, and the greatest railroad line in the world was finished. The earth's green covering of grass and trees soon begins to dwindle away to scattering tufts of verdure and dwarfed shrubs, and ere long we enter the Great American Desert. A barren scene of waste and desolation, with bunches of sage-brush and stunted weeds, appear to the view. The landscape resembles the great sterile plains of Tartary. Hardly any animal life exists along our lonely pathway, and the only sign of civilization is the rude shanty or adobe house at long intervals, and the little gangs of watchful track men. Now we pass along the base of barren mountains crowned with naked grey rocks or a few straggling cedars, and anon we shoot across the level alkaline plains, destitute of timber and vegetation, and where at times the brown sand is drifted and hurled along by the whirlwind like the snows of Winter. Springs and streams are few and far between, and the excessive droughts of this region often render their beds dry and parched for miles. It is no uncommon thing to see long stretches of sage-brush destitute of leaves and as dry and dead for the want of rain as though fire had ran among them. Before the railroad was built, good pure water could not well be carried, and the overland traveler of the slow wagon train often suffered from thirst, or was compelled to drink the miserable water along the sinks and stagnant sloughs. Occasionally bands of naked savages are seen prowling over the dismal plain, though their native haunts are mostly a few hundred miles to the north, among the timbered regions of the almost unknown wilderness, where game is abundant. Away to the south are the Root Diggers, the most abject and ignorant of the Indian race within the bounds of our territories. In places there are said to be beds of rock salt, and the soil is so impregnated with it that vegetation cannot exist. Greasewood and sage-brush are seen in scattering bunches, while the dark foliage of bunch-cedar sometimes fringes the gloomy mountain's brow, and long rows of sickly-looking willows line the margins of the dried up streams.

As the forenoon passes away we pass Lake, Monument, Kelton and Matlin, and as the sun approaches zenith we enter Terrace, 124 miles from Ogden. The next station is Bovine, ten miles to the westward, and thirteen miles more brings us to Lucin. After passing two or three more unimportant stations we arrive at Toano, pleasantly situated at the entrance to the Humboldt Valley. Near the head of this valley, surrounded by delightful scenery, we pass the night, aware that we have left the dreary desert region behind.

The first morning passenger train finds us in waiting. A long descending grade lies before us. With the entrance to the Humboldt Valley the scenery changes. After viewing cheerless sand hills and barren mountains for so many miles, we gaze with delight upon the grass and green verdure of the fertile slopes that here reach far back from the river. Pequo station is ten miles down the valley, and two miles farther on is Otego. Beyond Otego we rapidly pass Independence, Moore's, Cedar, Wells, Tulasco, Deeth, Halleck and Peko. The grading down the valley is generally very light, and little that is striking or imposing appears to the view. Stretches of willow and cottonwood line the streams in places almost as far as the eye can reach, while farther on the rich, level river flat, clothed in nature's garb of nutritious grass, winds far away without a tree in sight, reminding us for the time of the Platte Valley and the plains of Nebraska.

Passing Osno, a run of nine miles brings us to Elko, one of the busiest little stations we have seen for a long time. The emigrant camp, with its little huddle of long covered wagons and lines of picturesque mules and horses near the outskirts of the little town, proclaim the place of departure and shipping point for the White Pine mining region of Nevada. Several miners and other workmen are seen lounging around the platform, and the buildings in the near vicinity seem to promise tolerable accommodation. Here, then, 275 miles to the westward of Ogden, we will prepare to pass another night.

No. 16.—Nevada—Down the Humboldt Valley—Silver mines and salt fields—Mining towns and miners—The wonders of Nevada—Pyramid Lake—Petrified forest—Ascending the Sierra Nevada—Lake Tahoe—California—Grand and imposing scenery—Dark forests and ledges—The home of the grizzly bear.

With the crossing of the western line of Utah, the Territories are left far behind, and we enter the young and rapidly rising State of Nevada. It was taken from Utah and a territorial government established March 22, 1861, and was admitted into the Union October 31st, 1864. It contains 126,000 square miles, being larger than New York, Pennsylvania, Delaware, and Maryland, combined. Its population in 1870 was a little over 42,000. The eastern portion, which we have been traversing for some time, is principally made up of arid wastes and sandy valleys, interspersed with mountain ranges and narrow ravines, where only sage-brush and hard, dry weeds abound.

The State contains but few rivers of much magnitude, and is therefore poorly watered and without the advantages of steamboat navigation. During the Autumn and Winter months a considerable quantity of rain falls, but from April to October, showers and rain-storms occur only at very long intervals. The consequence is, that the ground becomes parched and baked by the continual drought, like the barren plains of Persia, and most of the streams, after meandering along in their shallow course for many miles, dwindle down to mere brooks and rills, and eventually are absorbed and swallowed up. Still, good wells may be found in most localities, and many beautiful lakes, surrounded by charming and picturesque scenery, abound. Indeed, its entire lake surface has been computed at nearly 1,700 square miles, or over one million of acres. Among the most noted are Pyramid, Humboldt, Crystal, and Lake Tahoe. Among its numerous valleys, Paradise, Grass, Cold Spring, Clover, Smoky, Crescent, and Thousand Spring Valley may be mentioned.

Nevada is emphatically a mineral State. Gold, silver, coal, copper, and lead, abound in vast quantities. In the western part of the State there is a ledge of silver ore running along the side of a mountain for three miles, with a width of from fifty to one hundred feet. Over thirty companies have been working upon it, and in places it has been mined to the depth of nearly a thousand feet. The supply of salt is well nigh inexhaustible. In one place, about fifty miles south of Minerville, an immense salt bed exists, no less than sixteen thousand acres in extent. Excavations of three feet in depth are filled up in a short time with new deposits of almost unparalleled purity. Mineral springs and new mines are constantly being found, and their full development must reveal a mass of mineral wealth almost incalculable.

As we descend the Humboldt Valley during the clear and lovely morning, past the little established stations of Moleen, Carlin, Palisade, Clure, Be-o-wa-we, Shoshone, and Argenta, we realize that we are traversing a more beautiful and fertile region than we have seen for some time. Patches of rich pasture are seen along the level flats, and the base of the rugged mountains that occasionally line the valley, are sometimes clothed in sombre belts of forest. The stations now become farther apart, and, with the exception of now and then a little primitive habitation of the track men, with its patched and pointed roof, and gangs of the sons of Erin, with their hand-car by the side of the track, the country seems deserted and destitute of humanity.

Thirteen miles beyond Argenta we pass Battle Mountain, and nineteen miles farther on is Stone House. Golconda, which is the next station, is twenty-four miles distant, and by the time we reach that point, the sun has mounted to the zenith. Eleven miles more brings us to Tule, and five miles farther on is Winnemucca. From here down to the Raspberry Creek station is twenty-one miles. The swiftest trains stop to bat very few of these unimportant stations, and often, unless they have passengers to be let off, they dash down the winding valley for hours at a time, like a bird on the wing.

The grading continues light, and but few important bridges are passed. In the Spring the river is often turbid and swollen, in many places breaking over its channel banks and spreading along the low valley for miles; but late in the Summer it dwindle away until it covers scarce a quarter of its bed, and is broken and rippled by the stones and uneven surface of the bottom. In places the track hugs the channel of the river, and we can look down into its clear, sparkling water, almost directly under us, and anon we dash away across the plain in a straight line, cutting off the distance around some great bend, where its course, perhaps nearly a mile away, is plainly marked by rows of willow and cottonwood, sweeping around in an immense semi-circle, and appearing, from the swiftly-moving train, to be swinging around backwards, together with the hills and all other stationary objects, until ere we are aware that it is so near, we find ourselves again sweeping along its margin.

Now and then we dash over a neat, light trestle bridge, spanning some narrow ravine or lateral creek, and then around a spur of mountain, where a new landscape and new scenes of beauty are ushered in.

As we reflect on our long journey across the solitary plains and treeless wastes of Utah and the Great American Desert, so far removed from all source of timber, we cannot help thinking of the immense amount of labor and money that must have been expended in the transportation of materials for this the greatest railway line in the world. Pine, for bridges, was in some instances brought from Puget's Sound, and in others from points in Colorado and elsewhere, two hundred miles distant from the line, from whence it was mostly drawn by oxen and wagons, costing the company, when delivered, over \$100 per cord. Oak timber, in some places, cost them over \$300 per cord. During the construction of the Kansas branch, 4,480 trucks and wagons, some of them drawn by as many as eighteen mules or oxen, left Atchison with materials for the railway, in a single year. No less than 29,720 oxen and over 7,000 mules were in constant employ in the transportation business of this section alone. Along the Nebraska plains far heavier work than this was carried on, and half a million tons of iron and timber were carried forward in one season. An army of men and animals daily traversed the great plains, like the mighty caravans of the East. An enterprise of so gigantic magnitude would almost seem sufficient to impoverish a nation.

Continuing down the valley, we soon pass Mill City and arrive at Humboldt. Here we again put up for the night. With the early train westward we are again in motion, and ere the sun has fairly risen we have passed the little stations of Rye Patch and Oreana, and are rapidly approaching Lovelock's. Little mining villages of rude shanties are rapidly springing up in many wild localities, sheltered in many cases by sterile crags and ledges. The hotel and saloon often play the most important part in the town, and here the adventurers and rougher knights of the pick and shovel, representing humanity of all shades of race and character, from the swarthy Mexican half breed and dusky Indian to the pure Caucasian of every nation, nightly congregate to have a social or unsocial time, play games, drink whisky, and spend their money. Many true men, however, who mind their own business, retire to their own cabin at night, and have the good luck to keep clear of the sharper, often gain wealth by delving in the mines; but in the remote settlements, beyond the reach of the regular courts of justice, the business, especially to a beginner, is in general very uncertain and hazardous, and probably on an average with such, more is lost than gained.

Passing a few more unimportant stations, among which may be mentioned Granite Point, Brown's, White Plains, Mirage, and Hot Springs, the lofty Sierra Nevada Mountains appear in the west, like a long blue smoky cloud, rising unevenly above the far distant horizon. Again we are reminded of our first glimpse of the Rockies. Eleven miles beyond Hot Springs is Desert Station, and nine miles farther on we stop at Wadsworth. Gradually the famous range has appeared more blue, plain and distinct, as we steadily approach its base, and now it rises directly before us like a mighty barrier, with its long wooded ridges, steep hills, and lofty peaks. But the genius of man was not daunted in the work of constructing a railroad, even here. We observe the track stretching ahead across the little strip of level plain, and curving in between two lofty ridges, and ere long we find ourselves winding upward through the narrow valley fringed with giant trees and sombre evergreen forests. Fourteen miles of the upward march brings us to Clark's Station. What a contrast between the beautiful and ever-changing scenery we are now passing through, and the desolate sage-brush regions we have left behind!

The grade soon becomes so heavy that the strong iron horse carries its load upward slowly and with difficulty. Another ponderous locomotive is hitched to the train, and even then we ascend slowly around the abrupt curves, while the united efforts of the two laboring engines make the grand old forest resound with their measured, sharp and heavy puffing.

Away to the north, nestling among the everlasting hills of the eastern slope of these mountains, is Pyramid Lake. It is in one of the most wild and rocky spots on the face of the terrestrial globe. On every side an immense wall of perpendicular rock rises to the amazing height of 3,000 feet. As the traveler stands upon the verge of this awful precipice and gazes far down upon the placid waters below, and surveys the surrounding masses of towering vertical ledges, his mind is filled with the sublimity and wild grandeur of the scene, and his brain reels with dizziness. From the centre of the unruined waters below, a strange rock rises in the form of a huge pyramidal dome 600 feet into the air.

Nevada abounds in many natural curiosities and wonders. In one barren and desolate place, in a region of sand and sage-brush, a petrified forest exists, some of the trees of which rival in size the celebrated mammoth trees of California. Many of the stumps are still standing, while the limbs and trunks lie scattered about in every direction. Three men worked twelve days cutting a section from one of these petrified trees for the Centennial. The block was three feet high, eighteen inches in circumference, and was estimated to weigh about 6,000 pounds. What mighty changes has this region undergone since these giant trees of stone were clothed in Nature's green and waved their noble branches in the gentle western breeze! Pure crystallized pillars of rock salt, hard as marble and resembling

icicles, is another of the natural curiosities of this State, sometimes found in the caves and gorges of the salt regions.

Resuming our journey, we soon find ourselves hemmed in on either side by steep, craggy mountain-sides and almost perpendicular ledges, that shut in so close upon us that there is barely room for our pathway and the foaming torrent below. In many places they have been blasted and sliced down, by steel and powder, to obtain a place for the solid road-bed beneath us. Tall pines and stately cedars wave their dark, sighing branches in the wind above us, their roots entwined among the loose rocks that line the edge of the towering precipice, down which the mountain streamlet dashes, white with snowy foam. Now and then we observe piles of naked, jagged rock, rising in ponderous masses on either side of the narrow ravine, in many places appearing as though they had been rent assunder by some powerful convulsion; and could the crumbling fragments that lay piled up and scattered around their base be once more replaced and the deep chasm be brought together, there is no doubt but that the river rocks would fit together exactly. All along the road there is a constant field of study for the geologist. The action of the water is plainly displayed in the deep gullies with overhanging rocks and sighing pines above, and along the heavy earth and rock cuttings the erosion of the atmosphere is continually softening and slacking the ledges and sand banks, and little lumps of hard earth and stone are ever rolling down with never-ceasing rattle, to form a scattered ridge of debris at the bottom.

Through a region of wild and picturesque scenery we slowly ascend the upward grade, past the stations of Vista, Reno, Verdi, Boca, Truckee, and Strong's Canon. The air has become cool and bracing, and the tree-tops, far below, sigh mournfully and wave about in the strong mountain breeze. Eight miles farther on we approach the Sierra Nevada summit. The scenery from the station is comprehensive and splendid. Donning our overcoats, we ascend one of the nearest peaks to gaze in admiration upon one of the most grand and magnificent landscapes in America. Immense regions of pine forest lie all around below us, stretching away in some places as far as the eye can discern them. Little woodland lakes, hemmed in by minor mountains, sparkle and glitter in the sunlight in a dozen different directions. Towering hills and snow-capped peaks lean against the blue horizon like faint lines of clouds, a hundred miles away. Enormous ledges and battlements of rock jut out from the mountain-side in bold relief, often receding tier above tier, displaying their black-cavernous openings, surrounded by scraggy cedars and swaying branches of thick evergreen tree-tops. Here, in the most dismal and secluded regions, where the snows of Winter bend the forest beneath the weight of their cold mantle, the grizzly bear has found a home. Here he roams through the forest, a king among the beasts of the Western World, and as yet almost unmolested by the rifle of the hunter.

Such is a general panoramic view of some of the wildest scenery of the eastern slope of the Sierra Nevada. As we passed the thriving little mountain station of Truckee, a few miles back, we noticed a pleasant road winding away among the hills in the direction of Lake Tahoe, on the State line, some distance away. Hundreds of travelers visit this charming resort every year. Situated high up, where the cooler regions of the atmosphere modify the excessive Summer heat, hemmed in by steep mountain-sides and lofty peaks, and surrounded down to the water's edge by sombre pine forests, reflected strikingly on the still surface all around the sides, the picture formed is strangely beautiful. During the warm months of Summer a finely decorated little steamboat, guided by skillful hands, ploughs the smooth surface twenty miles and back, to the perfect satisfaction of all concerned. So clear and transparent is the water, that the bottom may be seen at the depth of a hundred feet. It is said to be the highest body of water navigated by a steamer on the face of the globe. The low white, fleecy clouds that flit across the blue sky above, cast their silent moving shadows athwart its glassy mirror-like surface, while the distant echoes of the steam whistle reaches the ear of the passenger, and the air comes to his nostrils laden with the fragrant perfume of flag blossoms and forest vegetation.

Early in our ascent of the mountains we crossed the State line and entered California, and much of the wild and romantic scenery, with the miles of snow sheds we have passed through, has been in this State. Here, on the summit of the celebrated California range, 7,042 feet above the level of the sea, surrounded by grand and imposing scenery, where the air is cool, bracing and salubrious, fresh from the lofty peaks crowned with everlasting snow, we pause to view the beauties of Nature. At this point we have traveled 638 miles since we left Ogden, near the Great Salt Lake, and 3,187 since we set out from New York. Only 245 miles remain. We have entered the last State, and our long journey is drawing to a close.

No. 17.—Over the Sierra Nevada—The Western Descent—The Wonders of California—The Big Trees—The Yo Semite Valley—The discovery of Gold—Oakland—Last of the Pacific Railway—San Francisco—The blue waves of the Pacific—Conclusion.

Breaking over the Sierra Nevada summit, we commence the western descent into California. For the next forty or fifty miles grand and magnificent views are presented at every step. Nothing is dull or monotonous, but new surprises await



us at every turn. Cascade, six miles down, is the first station, and four miles beyond is Tamarack, after which we pass Cisco, Emigrant Gap, Blue Canon, Alta, and Gold Run. More picturesque or imposing railway scenery does not exist in America. Here is much of the heavier work of the Pacific Line. Now we are passing over an elevated level plateau, perhaps only a few yards across, and then along the foot of some frowning ledge, where massive lines of rock rise perpendicularly to a tremendous height, with ugly crags jutting out in bold relief, and in some places seeming to almost overhang the track. Far up along the crest of the ledge stunted pines and dark evergreens cling to the crevices, and occasionally a blasted tree leans outward over the precipice. As we gaze upward towards the blue sky and white patches of cloud sailing swiftly away, these leafless trunks, together with the whole ponderous ledge, seem moving over, as if they must crash down upon us and overwhelm us with destruction.

We move forward no longer at a slow pace behind two heavy engines that throw cinders from their smoke-stacks and cause the mountains to quake by the sound of their mighty efforts, but we dash along with a single steed again, with the speed of the wind, through deep earth cuttings, over high embankments, across splendid bridges spanning frightful ravines, around abrupt curves, and along the edge of immense precipices, where the eye catches an instant view far down into the tops of the tall pine trees descending tier by tier to the awful depths below, where the foaming torrent leaps from rock to rock, surging forward with sullen roar until it disappears over some dark abyss, to reappear again and glitter in the sunlight like some cyclopaean eye a thousand feet below us. Suppose the train should happen to leap from the track in one of these wild passes! What would be the fate of its passengers? We involuntarily shudder as we picture in our mind the ponderous train rolling and tumbling down the fearful descent, through the tops of the trees, and smashing upon the murderous crags below. But ere we have fairly completed the picture we are far away, speeding forward like a race-horse, the heavy train jarring the atmosphere with its constant roar, and awaking the echoes of the mountains by the shrill scream of the steam whistle as we pass some upward-bound freight train standing upon the switch and waiting for us to go by. Downward around the winding mountain-side we fly—the telegraph poles at the side of the track seeming to flit backward by the windows almost as fast as they can be counted—past Colfax, Clipper Gap, Auburn, and Newcastle, through the long dark forest and out again, down to the western foot of the Sierra Nevada range, and into the noblest region of the grand old State of California.

Now commences a scene as beautiful as it is enchanting. All nature seems to have donned a richer garb. Ten thousand flowers bloom in profusion along the roadside, and vegetable life seems to exist in giant forms. Noble orchards are passed by, and in Spring patches of the country are rendered white by their snowy blossoms, while the atmosphere is loaded with their sweet perfume. Herds of cattle and horses graze in the rich pastures along the hillsides, and well cultivated fields of wheat and other grain line the valley. Neat school houses and painted dwellings with pleasant piazzas and balconies, and with splendid gardens in the near surroundings, are seen all along the road. The busy hum of agricultural labor resound through the valley, and all appearances promise a liberal harvest.

Passing Pine, Rocklin, Junction, Antelope, and Arcade, we approach Sacramento, the capital of the State. Here we have a busy and thriving city of 24,000 inhabitants, with many very fine streets and elegant buildings. The State House is particularly conspicuous, and may be reckoned among the finest public buildings in the Union. The standing trains, moving locomotives, and constant hum arising from machine shops and moving railway paraphernalia, remind us of the manufacturing cities of the East. Having stopped long enough to procure dinner and take a hurried survey of a few of the more prominent objects of the place, we are soon sailing down the valley again. Steamers are seen dashing along the river or moored to the wharves near the outskirts of the city. It is the head of navigation on the Sacramento River. A run of five miles brings us to Brighton, and the same distance farther to Florin. Flying past the fine little stations of Elk Grove, Galt, and Lodi, we enter the enterprising town of Stockton. The scenery is rich and splendid, and the valleys and hillsides are almost constantly clothed in the deepest tints of Nature's verdure. Although nothing particularly exciting appears to our gaze, the lovely panoramic views presented in rapid succession as we pass Lathrop, Bantas, Ellis, Midway, and Altamont, challenge our admiration, and the immense vegetable growth displayed in the gardens, fields, and orchards, excites our attention, and proclaims the strength of the soil of the Pacific Slope.

California, taken as a whole, is one of the finest and most productive States in the Union. It stretches along the Pacific coast 750 miles, and contains 188,981 square miles, or nearly 121,000,000 acres. It is more extensive than all New England, New York, New Jersey, Pennsylvania, Delaware, and Maryland combined, and is far larger than the islands of Great Britain and Ireland. Its valleys are splendid, the climate is warm and delightful, the atmosphere pure and healthy, and the sky clear and serene. Its vegetable growth exceeds anything in the known world. Peach trees have been known to grow eight and a half inches in circumference in a single year: and an

almond tree being cut down, shoots sprung up, which in three years formed a tree twenty feet high and two feet in circumference. In some of the large orchards pear trees are growing which produce annually forty bushels of pears.

The dense red-wood forests form an important and valuable feature of the State. The wood is of a rich dark red color, free and easy splitting, often growing to the height of 275 feet, and 18 or 20 feet in diameter. The best specimens produce eighteen or twenty saw-logs, and an acre often furnishes a million feet of sawed lumber. The sugar pine, found extensively along the Sierra Nevada, often approaches the red-wood in size, and supplies excellent lumber. The topmost branches of the noble Douglass spruce wave in the breeze 300 feet above the ground, and the tough, uneven-grained trunk, so valuable for ship building, is sometimes ten feet in diameter. The ponderous California oak grows to the diameter of eight or ten feet, with wide-spreading branches which are thrown out horizontally about ten feet from the ground, forming an immense top, often over a hundred feet across.

The celebrated California wheat, of which there are millions of bushels raised and exported annually, is known and highly prized all over the world. The grape vine, as well as all other vegetation, grows to a prodigious size, as the wondrous specimen exhibited at the Centennial attested, and the wines produced are very fine.

California is particularly rich in wonders and natural curiosities. The famous "big trees" may justly be placed among the wonders of the modern world. The Calaveras grove was discovered in 1850, and the Mariposa grove in 1855. At first the reports concerning them were received with ridicule and disbelief; but hundreds of curiosity-seekers and numbers of scientific men soon visited the spot, and all doubts were set at rest. The traveler stands among them and gazes upward at the straight ascending trunks, more than a hundred feet in circumference and a hundred feet to the nearest branches, and he is struck with awe and astonishment. In 1854 one of these giants of the forest was cut down. The mere felling of it required the united labor of many men for six weeks, and cost \$550. This immense tree contained 250,000 feet of timber, and upon its stump, which was afterwards used as a ball-room, thirty-two persons danced with ease. The Horseback Ride is an old hollow tree, long since down, through which two horsemen may ride abreast for a distance of seventy-five feet, and pass out through an opening in the side. The king of them all lay prone upon the ground when discovered, old, moss-covered, and partly decayed. When standing it must have been the majestic monarch of the woods—40 feet in diameter, and towering 450 feet in height. These marvellous trees, the largest in the world, are found only in this State. They are known to the scientific world as the *sequoia gigantea*. The wood is light, soft, elastic, straight-grained, and resembles red cedar. What lumber they might make! But no machinery has ever been invented capable of handling and working them. In June, 1864, Congress ceded the Mariposa grove, embracing 2,589 acres, to the State, as a sort of public park, to be held for all time as a place of public resort and recreation. The same Act also secured to the State for the same purpose, the Yo Semite Valley, embracing 36,111 acres, yearly visited by thousands, and celebrated far and near as one of the most wonderful curiosities on the globe. It has thus been described through official sources: "As seen from the wild and rugged summit of one of the western spurs of the Sierra Nevada, eight thousand feet above the level of the sea, its appearance is that of a great chasm or cleft in the mountain crest, having a depth of four thousand feet in vertical descent, enclosed between perpendicular walls of rock varying in height from three thousand to five thousand feet. Through the centre of this valley winds the Merced River, from sixty to seventy feet wide, entering the valley by a descent of 2,000 feet in the progress of two miles, and forming two falls of 639 and 475 feet respectively, with intervening cascades and rapids. Standing in and over the valley are stupendous piles of massive purple-tinted granite, many thousand feet in perpendicular height, resembling the sculptured domes, columns, spires, and arches of some ancient architecture, or the ruins of temples and cathedrals of colossal dimensions."

The view from the centre of the valley is one of the most grand and imposing on earth. Mighty ledges rise perpendicularly on either hand, until they seem to pierce the very clouds. Many brooks and small streams pour over the sides, forming numerous waterfalls of an enormous height. The smallest are resolved into fine spray and mist long before they reach the bottom, while the larger ones form one of the grandest sights the eye of man ever beheld. The Yo Semite fall is the highest waterfall in the world. It should be seen at the time of high water, when it is a considerable stream, plunging in one wild, awful leap, and in an unbroken sheet, down a sheer descent of 1,600 feet upon a broken mass of crags and rocks, to dash along in a foaming rapid, and then with renewed force and power take the last flying leap of 600 feet more to the valley below. Its roar resembles heavy thunder, and the whole ponderous ledge seems to tremble before this grand display of Almighty power.

We might go on and describe the beautiful scenery of the North and South domes, and the enormous honey-bees' nest, high up in the rocks, inaccessible to the hand of man, where, perhaps, hundreds of swarms have congregated in one giant community, and have accumulated tons of honey, but we forbear cataloguing the wonders of California—they would fill a volume. But few of them are near the line of the rail-

way, and many are in the southern part of the State, a long distance away.

Eight miles beyond Altamont we pass Livermore, and six miles farther on is Pleasanton. Then follow Niles, Desoto, Hayward's, Lorenzo, and San Leandro. This part of the country is thickly studded with neat villas, and numerous busy hamlets abound. Tall church spires are seen, and blackened chimneys rear their lofty summits above enterprising manufacturing establishments all along the road. The fields and hillsides are well supplied with cattle and laborers, and the turnpikes and highways teem with humanity. The State was admitted into the Union on the 19th of September, 1850.

The great mineral wealth of California is well known to the reader. All along the western slope of the Sierra Nevada range gold is found in abundance, and it has become proverbial with many, when wishing to convey the great value of anything, to say, "The gold of California cannot buy it." It was discovered in the early part of 1848, by Mr. James W. Marshall, while engaged in digging a sluice or race for Captain Sutter's mill. He informed his employer, and the two mutually agreed to keep the matter secret and together profit by the rich discovery. But the secret was too good to be kept. It leaked out, and the news spread like wildfire. Thousands of greedy adventurers rushed to the new El Dorado, and excitement was fired to its highest pitch. Fortunes were made and lost in a single season. Men of every clime and character came crowding into the diggings, and life in California became almost a lottery. But upon the organization of the State, law and order arose triumphant, and it soon became one of the most valuable acquisitions to the American confederacy.

Passing the quiet little station of Melrose, we approach Oakland. A world of railway machinery and high columns of smoke from a score of moving locomotives hemmed in by long brick buildings with lofty chimneys, and standing cities of passenger and freight cars, proclaim the terminus of the railway. Beyond lies the clear blue waters of the Pacific. Moving slowly forward through a labyrinth of iron tracks, we stop at the pier, and stepping from the train, we bid adieu to the railway, and enter the ferry-boat which stands in waiting. A few minutes later we are landed at the foot of Pacific street, in San Francisco. A little farther on is the great Palace hotel, the largest hotel building in the world. It is 275 by 350 feet in size, nine stories in height, and cost no less than \$3,250,000. Passing on through the magnificent streets, surrounded by elegant and massive structures, fully equal to, and in some cases exceeding those we saw in Chicago and New York, we approach again the Pacific shore, where an immense mass of shipping is moored, and gaze eagerly out over the sparkling waters far away, until the dancing blue waves and sky appear to meet and blend in one. We have traversed our country from shore to shore, and traveled 3,432 miles. Here, then, we leave the reader. Our task is accomplished, and our journey done.

Cashmere Shawls.

Ten thousand persons are employed in the shawl manufacture in Cashmere. The weavers are all males; most of the spinners are women. The weaving of a shawl of ordinary pattern occupies three weavers for three months; the more elaborate and costly from twelve to fifteen months. The Cashmere shawls are of two kinds—one made by weaving small pieces and sewing them together; the other by embroidering the pattern on a plain woolen cloth. The real Cashmere thread is called *pashmeer*, and is made from the down, not the hair, of the Thibet goat, which is reared in the most mountainous provinces of that country; but the wool or down is carried to Cashmere for manufacture, the business being under the strictest government control, and to such a degree that no real *pashmeer* wool can be sold or smuggled into any other province of India. Fine shawls are made in Punjab and other provinces from goats' and sheep's wool, and sold as genuine Cashmere, but are an inferior article.

An Ancient Hotel.

California holds the most singular hotel in the world. It is situated between San Jose and Santa Cruz. Imagine ten immense trees standing a few feet apart and hollow inside; these are hotels—neat, breezy and romantic. The largest tree is sixty-five feet around, and contains a sitting-room and that bureau of Bacchus, wherefrom is distributed the thing that biteth and stingeth. All about this tree is a garden of flowers and evergreens. The drawing-room is a bower made from redwood, evergreens and madona branches. For bed-chambers there are nine great hollow trees, whitewashed or papered, and having doors cut to fit the shape of the holes. Literature finds a place in a leaning stump, dubbed "the library." If it were not for that same haunt of "Bacchus, it is certain that the guests of this forest establishment would feel like nothing so much as dryads.

Mexico.

BY CAPT. CARNES.

Near the Gulf is a broad belt of lowlands, called the "hot lands," which has the climate of the tropics. The sandy barrens are dotted with mimosas and prickly plants, alternating with savannas, beautified by groves of palms and luxuriating in the splendors of tropical vegetation. The wide spreading forest trees have their branches fringed and tasselled with creeping vines strung with glowing flowers. The undergrowth of prickly aloes, festooned with roses and honeysuckle, forms a dense, impassable thicket, where amid the rich and honied scents a myriad of gorgeous butterflies dance and quiver, and brilliant birds flit gaily, making the echoes resound with exquisite melody.

Yet, stay, dear enthusiastic reader, Paradise is not opening to your view. How opportunely now some lines of Moore's suggest themselves:

"Poor race of man," said the pitying spirit,
"Dearly ye pay for your primal fall;
Some flowerets of Eden ye still inherit,
But the trail of the serpent is over them all."

For the malaria, born of the rank and rotting vegetation and the humid soil, culminates in the scourge known as "yellow fever," and the country through its seasons of warmth and glory is unsafe for man to inhabit.

Passing this fatal belt, after twenty leagues, the traveller finds himself rising into a purer atmosphere. Vegetation changes every few miles. Each in turn, vanilla, indigo plant, sugar cane and plantain disappear, until at the height of 4,000 feet, the unchanging green of the liquid amber indicates that the traveler has reached the elevation where the clouds and mists settle in their passage from the Gulf, and maintain a perpetual moisture. Here are the confines of the temperate region where the evergreen oaks abound. The scenery now becomes grand and exalting. The ascending road sweeps along the base of mighty mountains, snow-clad, but bearing traces of former volcanic fires. Huge abysses yawn with the darkness lying thousands of feet in their depth. A multitude of plants find clinging foothold on the rocky wall, while just at the base of these gorges the laurel and fig tree flourish. Upward still, by fields of waning, yellow wheat and maize, and plantations of agave, from which, in the olden time, was made the favorite beverage of the Montezumas.

At an elevation of 8,000 feet, dark solemn forests of pine band in the last of the three great terraces, and the cold region is entered. Here, in the valley of the Anahuac, rests the City of New Mexico, enclosed by ridges of basaltic and porphyrite rocks. On the southeastern side rises the snow-crowned cone of Orizabo, whose ever-blazing summit has won for it the name of the "Mountain of the Star." Farther west rises Popocatepetl and other volcanoes which form a circuit of fiery sentinels only equalled by those that surround the valley of Quito.

In this wonderful country, the traveler, by a few days journey, can pass through the climates peculiar to all the zones, from equatorial heat to Arctic cold—can pass through the productions of the different latitudes, commencing with the majestic palms and ending with the hardly noticeable dwarf lichens; and from the mountain tops can call to the plains below.

"For the strength of the hills we bless Thee,
Our God—our Father's God."

A Half Dollar on its Travels.

A bad penny always returns, it is said, but one instance is recorded where a good silver half dollar returned to its possessor after a circulation of twenty years. A man living in Canton, Ohio, had in his possession about twenty-five years ago a silver half dollar with the date 1828, and that being his natal year he cut his name on it and thought to retain it as a relic. But a few years after he paid it out by mistake, and for twenty years it took its course in the general circulation. A few days ago he sent his little daughter to a neighboring town on an errand, and upon her return she gave him some change, and with it was the identical half dollar with his name cut on it.

Retiring from the Farm.

BY BESSIE LEE.

"Well, Mattie, we have tugged and toiled on this place pretty steady for twenty-five years. A pretty good place we have made of it. But you are getting tuckered out with the hard work. What do you say to moving into the village awhile and giving Nellie a chance at the seminary? I hate to send her to the boarding-school, and we could get along nicely there in that pretty little cottage I had to take for debt. You know you've always had such a life in view, and now's our chance."

Mattie looked up in surprise from the ball of carpet rags she was winding, to hear farmer John make such a remarkable proposition, but when she found he was in sober earnest, she entered warmly into the plan. To make money enough to leave the farm and live in the village had for years been her day dream. She had hundreds of times contrasted her lot with that of the nicely dressed, soft-handed ladies she met in the village stores and at church on Sundays, and always greatly to her own disparagement. She knew that her husband could buy out plenty of these delicate ladies' husbands, it is true, and have a good balance over. She knew that her every day table fare would be luxurious beside theirs; but then there was a fascination about that air of elegant leisure that pertained to them which could not be resisted.

Now fortune seemed to favor the change. They might retire from the farm and go into their own house in the town, and wash their hands free from that hard drudgery forever more. In her haste she urged John to sell the place out and out; but he, more prudent, determined to rent it until the 1st of February, the time for moving in that section.

Never did bride prepare for her "setting out" with more zeal and interest than did Mattie in her forty-fifth year prepare for her house in town. Nellie, of course, entered into the scheme with like enthusiasm as every change is "rose-hued" to the eye of youth."

The preparations were at length complete, and the new life entered upon. The cottage was found a very different abode from the wide roomy farm-house, and somehow Mattie felt rather cramped for "elbow room," though the place was as commodious as most houses of the kind in the village. For a while the "settling down" engrossed so much time and attention that nobody felt greatly any want. But after all was done and Mattie settled down in her rocking-chair, and John tried to "read newspaper for a living," like other "retired" men, the irksomeness of their position began to dawn upon them. The busy housewife could not, with all her devices, keep herself in work. She made rag-carpets for a solace, and pieced bed quilts to add to her already stocked store room. But for all these diversions, she could not keep from hankering after the dear old place. She kept it to herself as long as she could, but then she spoke out. What was her delight to find John as uneasy as herself.

"I am so glad we did not sell the farm, Mattie," he said.

"So am I, John. How I wish it was the 1st of February now."

Nellie was the only contented one in the family, and she could not but see with anxiety that mother's health was evidently failing.

"I feel," Mattie wrote to me, "as if I was away somewhere visiting and getting ready to go home;" a most uncomfortable feeling to carry with one through a whole year. Yet, for all that, I presume it was this feeling that enabled them to tide over the time until moving day came again. Surely

"Love lorn swain in lady's bower
Ne'er panted for the appointed hour,"

more than did my good farmer friends pant for the time when they should be able to take up their old cares and labors once more. "Nothing to do" was a weary song to them. The "elegant leisure" they found an elegant humbug to people of their previous training.

They are back on the old Ohio farm, glad and happy to be there. Oh how delightful seemed every nook and corner. The old milk room, the spacious closets and cupboards and pantries, the cellar fit for a parlor; the carriage house, tool room, and all, for John had been a thrifty farmer and had everything complete about him. It took the first two or three months to bring back the

house and place to its aforesaid standard of neatness. After that they settled down and took solid comfort. They hired a boy to do chores, and Mattie sent her milk to the cheese factory, so they thought they had only about enough work left "just for exercise." People who have been so hardworking have queer ideas of the amount of exercise requisite to keep them comfortable. You and I might think it quite a day's work. But they are comfortable, and that is the main point.

Mattie paid me a visit last summer, coming five hundred miles to make it, and she told me it was not likely they should ever leave the old farm again while they lived. One experiment in retiring from business was quite sufficient.

Some Indian Foods.

BY B. C. MORSEBEE.

Any inquiry concerning the food of the Aborigines is interesting, as it reveals many plants which might be used as food in times of scarcity, and which are wholly unknown to the common people, and very little known by men of science. It is not to be understood that the substances which we describe are used by all Indians. Those who receive annuities and those who are confined to reservations, having become partly agricultural find other means of subsistence. But the wild, unsettled tribes, who travel over thousands of miles of territory, and never remain in the same spot more than two or three days, are often compelled to make use of singular substances. Very few organic substances, not known to be poisonous, are to be found, which do not enter into their list of foods.

Clover enters very largely into the list. It is generally boiled, but sometimes eaten in its raw state. Their manner of boiling their food is singular, and it may be well to describe it. First, a hollow in a rock is found, large enough to contain a sufficient quantity of water, then a fire is built, and stones are heated red hot. The hollow is filled with water, and the red hot stones are dropped into it; as fast as they are cooled they are taken out, and their places filled with others. In this manner nearly all their vegetable foods are cooked.

The root of the yellow pond lily forms an important item. It is found in the water four or five feet deep, and the Indian women dive for it, bringing it up in pieces one or two feet long. Musk rats store it up in large quantities, and the Indians contrive to steal their supply. The seeds are also used either ground and made into cake, or parched and eaten like pop corn.

The root of a species of fern known as the *Pteris aquilina*, has a pungency which renders it disagreeable to the taste when raw, is roasted and eaten in large quantities. When properly cooked, it has a taste similar to that of wheat dough. The root of the cattail flag is a favorite dish, whether roasted, or boiled, or pounded, and made into a cake. Before starting on a journey, the Indians generally procure a quantity of this root to chew on the way, as a preventative of thirst.

The inner bark of nearly all trees is eaten, but that of the pine is considered choicest. That of the birch is next in flavor. It is generally dried, pounded, and made into bread. When new and fresh, this bread is not unpleasant to the taste, but when old, it has a strong flavor resembling the wood of which it is made. The tender twigs of many trees are often chopped and cooked in oil. When cooked in buffalo fat, they form a very agreeable dish, though not very nutritious.

The fruit of a species of cactus known as "Spanish bayonet," is highly esteemed when fresh and green, but when ripe and dry, it is a powerful cathartic. Some soldiers once captured a large amount from the Apaches, and being unacquainted with its properties, ate a considerable quantity. The result was, that for some time no calls were made on the medicine chest for salts or castor oil.

Of animals, no part except the skeleton is rejected; and as far as my observations extend, there is no living thing which they will refuse. Snakes, toads, bugs, lizards, worms, and vermin of all kinds are acceptable, and are eaten with a relish. But as Du Chaille says: "Civilization is very well in its place, but it has no business in an African jungle when food is scarce." Neither has it any business among the American Indians under the same conditions, so we will drop the subject without saying anything more about their animal foods.



NEST IN THE APPLE TREE.

TINY HOUSES AND THEIR BUILDERS.

"My little bird of the air,
If thou dost know, then tell me the sweet reason
Thou comest away, duly in thy season,
To build and pair."

The earliest bird does not come to this latitude to catch the worm, or if it does, it must be woefully disappointed in its calculations of a full meal, unless the embryonic larva clinging to some bit of rough bark is all its dainty appetite craves.

The early bird appears to be nothing more than a tuneful voice, carrying about with it a downy bunch of feathers. How it received the invitation to come, and why it came, while the fields are still desolate, is a profound mystery. We wonder what could have induced it to quit the live oak forests and orange groves of Florida, and the sprouting cotton and rice of the Carolinas, for the inhospitable bleakness of a northern March.

But the early bird is done without fuss, if not without feathers. The newspapers do not mention the blue-bird among their arrivals; but you get up some fine, clear, sparkling morning, with the thermometer still pretty low down, and a crust of ice perhaps glazing the pools, and there he is in the maple opposite your window, tuning his pipe and dressing his feathers with the easy nonchalance which distinguishes bird manners. He seems to have no solicitude as to the ways or means of living, nor is he in the least downcast about the mistake which appears to you he has made in his reckoning. His new apartments evidently suit him quite as well as the cane-brake and the magnolia grove.

This little handful of song and feathers is a sermon, a poem, and an orchestra tucked into the smallest possible compass. March nights are often bitter, with a spiteful, rasping cold, that delights in irritating the skin and raising a blister on the temper. Where does the early bird lodge on such nights at the beginning of the season? It seems as though he must make his nest in God's own hand.

It is inexpressibly pleasant to hear the first chirpings, peepings and twitterings of these wide-awake songsters about stone walls and stubble fields, and the sunniest spots in the orchard. Watch them as they light on the rails of the fence and hop along, their pink toes spread wide, stopping now and then to nip a little bit of lichen or to dress and cleanse the under part of the wings. What independent, undaunted little creatures they are!

The first song bird, I hold, is as miraculous as Jonah's gourd. Its instincts, mode of existence, its very being, are a mystery. There it sits at home on the limb of your gnarled apple-tree, chock full of adventures and experience of travel you would give your eyes to know, and pouring all out in a tangled, careless strain of music, from a heart brimming over with joy. There he sits, the John Baptist of spring, and prophecies to the woods and fields, saying, "Prepare ye the way of the anemone and the violet, the clover-top and the daisy."

The little fellow must shiver and moan, we fancy, in that sour weather of which so much that we call the spring is composed, when even the grass blades look as if they longed to creep back into the earth for protection. But never comes a cry or groan from our hero. You will hear him singing on the skirts of a snow-squall, when his toes must ache with the cold, as if he had found a rift in the cloud where the peace of heaven was smiling down into his heart. With no visible means of support, with no abiding place, who can tell but he drinks of the river of life and picks the berries of the tree that grows on its borders?

The more his step-dame, March, scolds the little fellow, the more he quirks his head and dresses his feathers, and gives quick, defiant glances with his bright eyes. See him on a plum-tree bough picking gum from the smooth purple limbs, while the wind ruffles his feathers with an ungentle hand. Still he clings with his tenacious pink claws, and then takes a short flight, warbling and twittering on the wing, as if the song would not allow itself to be repressed.

One bird cannot make a summer, but he becomes a hostage for flowers, and grass, and leaves. A fountain of hope bubbles up in the withered field when the first bird-song is heard. Winter sears the imagination, and we forget invariably how beautiful the spring-time is. It comes to us each year as a fresh surprise. When the first bird sings about the eaves, we have the evidence of things unseen. Somewhere enough wonder-working power remains to fashion a bird and fill its heart with music, and all things become possible to God.

The little songster puts in an early appearance, perhaps because he can see farther and can learn the lay of the land better before the countryside is clustered with foliage and shade. Then when he has got his bearings, he is content to let the grass grow under his feet.

I remember a child's account of the creation of the blue-bird, which, though it does not agree with the received opinions of naturalists, has a certain significance. She said, "After God had got him 'most made He cut of a little piece of the sky for his jacket." There is a poetic touch in this any one will appreciate who has observed the rapid, impulsive flight of the blue-bird as he dips and circles round, throwing a spray of light from his graceful wing. Then, indeed, he does seem like a bit of animated sky.

The blue-bird arrives first in our latitude, but very soon all the other pretty little feathered creatures follow, and how delighted are we to see them fitting about so merrily in preparation for a summer sojourn with us.

Gentle Alice Cary says of them:

"Have the birds come back, my darling,
The birds from over the sea?
Are they cooling and courting together
In bush and bower and tree?
The mad little birds, the glad little birds
The birds from over the sea!
Oh, and I would I could hear them sing,
Oh, and I would I could see them swing
In the top of our garden tree!
The mad little birds, the glad little birds,
The birds from over the sea!

Are they building their nests, my darling,
In the stubble, brittle and brown?
Are they gathering threads, and silken shreds,
And wisps of wool and down,
With their silver throats and speckled coats,
And eyes so bright and brown?
Oh, and I wish I could see them make
And line their nests for love's sweet sake,
With shreds of wool and down,
With their eyes so bright and brown!

Comparatively few people fully appreciate birds, and this is especially true in the rural districts, where they are most common and less thought of. Yet, to watch and learn the habits of these little feathery beauties, is one of the most delightful occupations at which a few leisure hours can be spent. In the spring of the year, when the leaves are bursting forth and the grass beginning to show a rich green, these little warblers are seen making their preparations for the summer house or nest in which they rear their young. Piece by piece are the bits of stick, moss, thread and leaves woven together until, by patience and perseverance, a complete nest makes its appearance. During the progress of the work, which sometimes lasts weeks, no one is so industrious as they—but always with a song, merry and cheerful. When one rises early of a spring or summer morning, and in the balmy air hears the caroling of these beauties, the effect cannot but be cheering and pleasant, nor can it fail to elevate one and bring one nearer to the Giver of all these beautiful things, who many times condescendingly build and rear their young about the habitations of men.

Last summer, for instance, we hadn't any idea of taking summer boarders, for our house is on a dusty street-car-stricken street in a crowded city, and we had no allurements to offer those who wished a cool, quiet retreat during the summer months. But we have a little gem of a back-porch, shaded by a wild grape-vine, whose seed some kindly wind brought and planted for us; and about four o'clock on summer afternoons, when the heat made our front rooms uncomfortable, we women folks, with sewing, books and rocking chairs, would repair to this bower which had apparently been shaded for us. One of the afternoons, when the heat made conversation lag, and we were unusually quiet, we heard a low contented twitter from among our vines; stealthily mounting a chair and peering among the leaves, we discovered our summer boarders. On a tiny nest, that rocked with every breeze, sat a little brown wren, with a world of solicitude and motherliness beaming from her bright eyes. With due apologies for intruding upon her while engaged in domestic duties, and assuring her that she should not be disturbed, we left our perch and proclaimed the glad tidings to the family. A bird's nest in the grape-vines—what a revelation!

"A cradle lined with leaves—
Light as winds that stir the willows."

In about half an hour another brown bird, whom we supposed to be Mr. Wren, fluttered in among the vines, and then such a chattering as we heard. The wife told him that she had had visitors, and asked if he thought it safe to remain. He answered that he had been sitting on the fence taking a good look at us, and if there was anything in physiognomy, we would not molest them or make them afraid; and, besides, moving was always a trouble; the summer was passing rapidly, and there was no time to lose in the matter they had on hand. She told him she would rely on his judgment, and if he would take care of the house awhile, she would go and find some supper; so off she flew, and the little man took possession.

From this time our summer boarders were a fixed fact, and none but those who have had such boarders can imagine the pleasure and amusement a family of eight "grown ups" can derive from watching their modes of procedure.

Instead of asking our men folks the old question, "any news?" we ran to the gate to meet them with the joyful announcement, "There's an egg in the nest," as if there was but one nest and one egg in the world.

Then two eggs, and finally three were proclaimed, and our tiny housekeepers seemed to have enough to do. The little mother-bird stayed at home almost altogether, and Mr. Wren brought little delicacies to coax her appetite. He would lay a fat worm on the edge of the nest, and sing with all the fervor of Faust to Marguerite, "Do take a bite, dear. I know it will do you good. You haven't been out for so long, and this is such a fat one." Then Mrs. Wren would chirp out that she wasn't one bit hungry, but she'd try a little to please him; and such an outburst of rejoicing on his part as you never heard, I know. They became quite used to us, and even tolerated our opening the vines to say "good morning" to them.

One morning, we noticed an unusual fluttering in and out of the vines, and upon investigation, found three little gaping mouths, at the ends of three extremely long necks, stretching up out of the little home. Such a jubilee as was going on in birddom! I really believe the proud, consequential father brought all the wrens in the neighborhood to see those little prodigies. Such hungry things as they were, too, and so greedy and selfish toward each other—jostling and pushing for the first bite. Their conduct entirely exploded the old belief that "birds in their little nests agree," for ours didn't. We watched their growth from fuzz to feathers. At first mamma sat on the nest and covered them with her wings. But by and by they were too large for such coddling, and the unselfish mother perched on the edge of the nest or adjoining twig, and where she stayed at night is an unsolved mystery. Their appetites increased amazingly, and the father and mother were constantly on the wing from four o'clock until six to give the greedy little Oliver Twists their supper. While the father and mother were out foraging one afternoon, the little ones grew so lively, and frisked about so that they spilled themselves out of the nest; and such a sight as the half grown things were! half-running, half-flying on the grass, all heads and legs with a slight sprinkling of feathers. We put them back in the nest, but it was of no use. Having had a taste of freedom, they were hungry for more, and fluttered out much faster than we could put them in. When the parents arrived, actual astonishment was depicted on their countenances. They chirped to their offspring, and suggested their return to the nest; but no, they wouldn't be persuaded, so the parents consulted aside, seemed to agree, and, with alluring chirps and bird-like beckonings, led the tottering steps and trembling wings of their obstinate nestlings to an adjoining vacant lot, where we lost sight of them, and so departed our summer boarders. The deserted nest is among our household treasures, and speaks to us of our gentle visitors, who brought blitheness and cheerfulness with them, taught faith and patience while they were with us, and departing, left behind them a pleasant memory.

It is no wonder that Cuvier, Audubon and others so earnestly made a life study of birds and their habits. Their coming and going, pretty ways, variety of song and plumage, ingenuity and skill in building their tiny homes, and their devotion to their young, all combine in making them an infatigating study.

A little incident related in the Life of Audubon forcibly illus-

trates the patient, persistent, painstaking manner in which he and other men of science prosecute their investigations. It was while he was hunting in the forests of Louisiana that he discovered a tiny little woodbird hitherto unknown to the ornithologist. It was not so big as a wren, and was clad in a coat of such plain sober gray that none but practiced eyes would detect it fitting in and out among the similar colored branches of the peculiar species of trees it inhabited. But, however humble the bird might be, to Audubon it was one of a charming and curious race of beings that interested him above all other living things, and to ascertain its history and habits was a matter of as much importance as though it were chief of the tribe. He therefore bent every energy of his intense and eager nature to the study of it.

One night he came with the exciting news that he had found a pair which were evidently preparing to build a nest. Next morning he was up and off to the woods at daybreak, taking along with him a telescopic microscope. Erecting this under the tree that sheltered the almost invisible little creatures he was anxious to observe, he made himself a pillow of moss, and then lay quietly down on the ground, with his eye to the instrument, and remained there throughout the livelong hours until nightfall, watching the movements of the secret and unsuspecting architects.

This course he repeated day after day, for three weeks, without respite or intermission, and then he was able to tell, with minute and accurate detail, just what materials these builders in the heart of the wood choose for their dwellings, and how they put them together, and the number of days required to complete the progress of incubation.

"Sing sweet, little bird, sing out to your mate
That hides in the leafy grove;
Sing clear and tell him for him, for him you wait,
And tell him of all your love."

Vegetable Acids.

Tannic, Gallic and Citric Acid.

TANNIC ACID, so much used in the preparation of writing-ink, and in the manufacture of leather, is obtained from various sources, the principal one being the gall-nut. The acid itself is derived from *tannin*, a principle which is contained in the bark and leaves of the oak, pine and hemlock. This principle, which possesses strong binding properties, also occurs in the roots of some plants, and in tea and coffee. On this account it is very properly classed as a vegetable acid. To illustrate the method of obtaining it, boil in about one ounce of water 150 grains of powdered gall-nut for several hours, taking care to place the water in the vessel, according as it evaporates. By this means, a solution of tannic acid is obtained, which affords a copious gelatinous precipitate on a few drops of isinglass solution being added to it.

Its use in tanning depends on the fact that it precipitates the gelatin in the skins as an insoluble substance which remains in the hide. The latter operation is performed in large covered vats, and toughens the skins and renders them incapable of further change, thus transforming them into leather.

Tannic acid may be obtained in a crystallized form by means of the action of ether on nut-galls. The ether and nut-galls are combined and allowed to evaporate, when crystals of the acid will be afforded.

GALLIC ACID is somewhat similar to tannic acid in many respects, as it possesses besides other valuable properties many of those of the latter. It has a similar origin and is also used in tanning, and in the manufacture of ink. It is also much used as a developer in photographic processes, the acid for this purpose being first heated, when pyro-gallic acid is produced; to this a solution of spirits of wine and acetic acid is added, and the whole used for developing the picture on the glass plate after the latter's exposure in the camera. It may be produced by boiling a solution of crystals of tannic acid with diluted oil of vitriol. After boiling, the acid is evaporated and crystallized as in tannic acid.

CITRIC ACID is produced chiefly from the lemon, although it is also sometimes found in the lime and tomato. The manner of obtaining it from the lemon is as follows: After squeezing the lemons chalk is added to the juice, thus affording citrate of lime. To the precipitate of the latter, dilute oil of vitriol is added, this having the effect of decomposing it. The citric acid is obtained from this, after five parts of water have been added, in the form of large, transparent crystals.

It possesses a sour but rather agreeable taste, its use being confined chiefly to medicine and calico printing, in the latter use of which it is generally in the form of magnesium citrate.

Dogs in Council.

SAGACITY OF ANIMALS DURING THE SIEGE OF PARIS.

It is a curious question whether animals take notice of the events which are passing around them, but which, nevertheless, are apparently outside of the sphere of their instinct. M. Theophile Gautier, the well-known French journalist and writer, has raised this question in regard to the animals which were in Paris during the siege; and he brings forward several facts, which he says fell under his own observation, to prove that they not only took notice of passing events, but regulated their movements accordingly. He observes that the dogs took notice, from the very first day, of the abnormal condition of Paris. The unusual movements of the inhabitants, the almost universal change from civil to military costume, the exercising of the mobiles and the national guards on the public parades, the continual sounding of the trumpet and beating of drums, kept them constantly excited and uneasy and set them to reflecting. Some of them, refugees from the suburbs, with their masters, visibly lost their power of finding their way about. They hesitated in the choice of streets, were uncertain of the traces, scented their path, and at every corner consulted some other dog that lived in the neighborhood. The suburban dogs were scared at the noise of passing vehicles and ran from them, while the city dogs scarcely took the trouble to get out of the way of the wheels. "Every morning," says M. Gautier, "there assembled before our door what appeared to be a council of dogs, presided over by a broad-backed, bandy-legged, brown and yellow terrier. The other dogs paid him great deference, and listened to him attentively. It was evident that he spoke to them, not after the manner of men, in an articulate language, but by short barks, varied mutterings, pursing of the lips, movements of the tail, and expressive play of the physiognomy. Every now and then a new comer seemed to bring news; and the council commented on it, and after a while dispersed." This went on during the first month or two of the siege, when bread was plentiful, the stock of beef was still considerable, and the dearth of forage rendered horse meat abundant. The animals did not suffer then; but soon things began to change, and their rations diminished as those of the men did.

The poor creatures could not understand it, and gazed at their owners with wondering eyes when their meagre pittance was placed before them. They seemed to ask what they had done to be so punished. Many masters abandoned their dogs, not having the courage to kill them; and these animals were to be seen at night wandering, like shadows, near the walls, and trying to induce kind-looking persons to have pity on them. M. Gautier says he was continually followed by them, they uttering faint cries all the while, and sometimes venturing to put their noses to his hand. Soon they began to perceive that people looked at them in a strange manner, and under pretence of caressing them, felt their flesh, as a butcher would, to ascertain if they were in good condition. The cats perceived this sooner than the dogs did, and became exceedingly cautious as to whom they allowed to touch them; on the least quick movement they fled to the roof or cellar; but at length the dogs "smelt a rat," and ran away when any one called or whistled to them. The canine council, before mentioned, diminished daily, and there soon remained no one of its members but the dreaming terrier, who, however, was only dreaming in appearance; for in reality he was always on the guard, scenting danger afar off, and showing his heels at the approach of any one at all suspicious.

The Adoration of Women.

That adoration which a young man gives to a woman whom he feels to be greater and better than himself, is hardly distinguishable from a religious feeling. What deep and worthy love is not so? whether of woman or child, or art or music? Our caresses, our tender words, our still rapture under the influence of autumn sunsets, or pillared vistas, or calm, majestic statues, or Beethoven symphonies, all bring with them the consciousness that they are mere waves and ripples in an unfathomable ocean of love and beauty; our emotions in its keenest moment pass from expression into silence; our love at its highest flood rushes beyond its object, and loses itself in the sense of divine mystery. Is it

any weakness, pray, to be wrought on by exquisite music? to feel its wondrous harmonies searching the subtlest windings of your soul, the delicate fibres of life where no memory can penetrate, and binding together your whole being, past and present, in one unspeakable vibration, melting you in one moment with all the tenderness, all the love that has been scattered through the toilsome years, concentrating in one emotion of heroic courage or resignation all the hard-learned lessons of self-renouncing sympathy, blending your present joy with past sorrow, and your present sorrow with all your past joy? If not, then neither is it a weakness to be so wrought upon by the exquisite curves on a woman's cheek and neck and arms, by the liquid depths of her beseeching eyes or the sweet childish pout of her lips. For the beauty of lovely woman is like music—what can one say more? Beauty has an expression beyond and far above woman's soul, that it clothes, as the words of genius have a wider meaning than the thought that prompted them; it is more than woman's love that moves us in a woman's eyes—it seems to be a far-off mighty love that has come near to us, and made speech for itself there; the rounded neck, the dimpled arm, move us by something more than their prettiness—by their close kinship with all we have known of tenderness and peace. The expression in beauty (it is needless to say that there are gentlemen with whiskers dyed and undyed who see none of it whatever) and for this reason the noblest nature is often the most blinded to the character of the woman's soul, that the beauty clothes. Whence, I fear, the tragedy of human life is likely to continue for a long time to come, in spite of mental philosophers, who are ready with the best receipts for avoiding all mistakes of the kind.

GEORGE ELIOT.

A Word to Young Men.

It is an old saying, "That boys invariably wish to do something which they cannot," and I am inclined to believe, that the same might be said of girls; still, upon that point I am not posted, so will address my remarks to young men, allowing the young ladies "To wear the jacket, if it fits."

In fact, this desire to do something they cannot, seems to be an inherent, inborn, natural quality. Did you ever see a boy that had not rather work in the field from morning until night, with spade and shovel, than to bring water for washing, and keep the hens out of the flower garden; or, if asked to pick up chips, had much rather take an ax and chop cord wood; and if requested to rake or spread hay, says, "that he would like something easy, like mowing or pitching upon the load?" So you will find it if you go through the whole routine of boys' work.

But this wishing for something beyond, is not confined to boys only; young men, who have been brought up on the farm, and who have but little of any other kind of business, often think themselves fully prepared for clerks, merchants, and bankers. Many a young man begins the study of medicine or law, without a necessary qualification for success in either. They do not consider how important a question it is, and start out as unconcerned as though nothing was pending.

Nature has, with a few exceptions, done something for each one of us, and we find that those who succeed best in their labors, have a natural faculty for them. Ought we not, then, to find out, if possible, for what we are fitted—to find our place—and then fill it?

Parents seldom, if ever, try to find for what their children are adapted, and then advise them. They say follow this or that business, choose this or that profession, you can make money at it and live without hard labor.

Many examples might be mentioned, where men have commenced the study of law, or medicine, or theology, and after finding that they had made a serious mistake, exchanged for something in keeping with their talents.

Young man, do not decide such an important point in your life without earnest, thoughtful deliberation. Ask yourself this question, "Have I a taste for such work, and the necessary qualifications?"

N.

HERE is a new business.—A lady advertises herself as "ornamental guest," to "attend" at grand dinners and other parties, where her grace, wit and beauty, shall contribute to the entertainment of guests. Of course, she desires a good compensation for such valuable services.



SPRING-TIME IN THE WOODS.

BY MRS. G. LINNEUS BANKS.

Come out, sweet wife, for a stroll in the woods—
A stroll in the woods with me—
To welcome spring and its bursting buds,
As the coy young blossoms peep out of their hoods,
And blush on the old beech-tree.

We may look at the names I proudly cut
Last spring on its willing bole,
And rest once again in the woodman's hut,
Where my first love-gift on your finger put,
Held promise of soul to soul.

It is sweet, now a plainer circlet binds
Our names and our lives in one,
To ramble again where the wood-path winds,
Retracing the growth of love in our minds,
Spring sunshine lighting us on.

Sweet to list to the ringdove's gentle coo,
The trill of the linnet's throat,
To mark how the fluttering thrushes woo,
And listening, softly *our* vows renew
With as clear and true a note.

How the verdant freshness of young spring-time
Through our very being thrills,
Uplifting the common to the sublime
With the force of a gifted minstrel's rhyme,
Or sunset 'mong Alpine hills.

For here in the woods, where the graceful ash
Contented with the gnarled oak,
Whether sun shall burn, or rain shall splash,
Whether runnels shall dry, or rills shall dash,
My being to rapture woke.

For here I met with a flowert as fair
As snow-drop or lily-bell,
With a lissom grace and a modest air,
No bloom of the spring could with her compare,
And now she is mine own Nell.

Let me stoop and gather this primrose pale
(It grows where you dropped your glove),
With anemones strong to brave the gale,
When the blustering winds of March prevail,
Fair emblem of wedded love,

Spring promises ripen to autumn fruit
In trees, in loves, and in lives;
And trees, loves, and lives alike bear the fruit
Of storms that threaten both blossoms and fruit,
Mellowing that which survives.

But fairer, farther, the promise of spring,
Sunny, and balmy, and bright,
Sends our souls, dear wife, on uprising wing
To the promise of life, where angels sing.
And no wintry wind can blight.

Laughter.

Who can estimate the value of a hearty, happy laugh? It is water in the desert—manna in life's wilderness. Some persons are far more richly endowed than others with this happy gift, and the method of its manifestation in themselves and its effect upon others are among the most wonderful mysteries of our being. Go where they may, they are ever welcome; for, provided always that their matchless talent is refined by good taste and tempered by good feeling, they bring the summer with them and make everybody the brighter for their presence. It is marvellous to think what an atmosphere of fun seems to surround some people, what an air of festivity they throw around the dullest things, and what radiance of expression they impart to the most commonplace emotions. Sydney Smith, in this respect, was inimitable. His comic faculty was magnificent; he was the life of every dinner party honored by his presence. *Apropos* of this subject he tells a good story: "A joke goes a great way in the country. I have known one last pretty well for seven years. I remember making a joke after a meeting of the clergy in Yorkshire, where there was a Rev. Mr. Buckle, who never spoke when I proposed his health. I said that he was a buckle without a tongue. Most persons on hearing laughed, but my next neighbor sat unmoved and sunk in thought. At last, a quarter of an hour after we had all done, he suddenly nudged me, exclaiming; 'I see now what you meant, Mr. Smith; you meant a joke.' 'Yes,' I said, 'sir, I believe I did.' Upon which he began laughing so heartily that I thought he would choke, and was obliged to pat him on the back." In this case, the first joke was excelled by the second. Dean Swift's wit was of a different order, combining fun with wisdom. It happened one day that his cook, whom he invariably called "Sweetheart," had greatly overroasted the only joint he had for dinner. "Sweetheart," said the dean, in the blandest possible tones, "this leg of mutton is overdone. Take it back into the kitchen and do it less." The cook replied that the thing was impossible. "But," said the dean, "if it had been underdone you could have done it more." The cook assented. "Well, then, Sweetheart," rejoined the master, "let this be a lesson to you. If you needs must commit a fault, at least take care that it is one that will admit of a remedy." The mingled wit and wisdom of this admonition are delightful.

Weight of the Human Body.

There are but few people but like to be weighed occasionally; some do it regularly at certain hours, before and after meals, or taking a bath, etc. Yet there are few things so changeable as the weight of the body; indeed it is rarely the same for a few minutes together; and if a man were to sit on one of the plates for the whole day, the other plate would be constantly oscillating within certain limits. The state of the weather and time of the year influence our weight. In summer we grow fatter than we are in winter; such is the general rule; yet most people believe that hot weather makes us leaner. It is true we eat less and perspire more; these are certainly two causes of loss; but on the other hand, we expend less to keep up the temperature of the body, and, moreover, we drink more and our beverages possess the curious property of increasing our fat. Beer, and even pure water, are great fattening agents. Cattle reared for slaughter get a great deal to drink, which increases their bulk considerably; the tissues are gorged with liquid, and so the weight increases, but the system is weakened. In winter, the organism has to be provided with heat; we eat more, but also expend more to keep up the temperature of the body; then also we drink less, so that, on the whole, the loss is greater than the gain, and we grow lean. In short, we fatten when, under ordinary circumstances, we burn more of the food we have taken, and we, therefore, in breathing, exhale carbonic acid in proportion. We begin to emit less of the latter in April; its amount diminishes considerably in July, August, and September, and attains its minimum about the autumnal equinox. It then goes on increasing from October, and we begin to lose the substance gained during the summer. From December to March we remain nearly stationary. To conclude, as we consume less in summer than in winter, all other circumstances remaining the same, we are heavier in hot weather than we are in winter.

Horses in Japan.

A Japanese stable is another illustration of things turned upside-down, or wrong part before. In a foreign stable, in walking past the stalls, one sees only the flanks of the animals that stand with heads fronting the streets. In a Japanese stable, as you walk by the stalls, the horses stand with their heads toward you, and the open end of the stall and their flanks at the far end. The stalls are boarded up to the height of the animal's head, but the most curious thing is the way the horses are tied. The Japanese halters differ from ours. When they lead a horse they tie a rope around the lower jaw, between the incisors and grinders. In the stable the bit is kept in the mouth, and the horse is tied up by a rope from each side of its jaw, as we would secure a horse to curry him. The brute is thus kept all day with his head as high as Job's war-horse; his nostrils on the level of his eye, as if snuffing the battle afar off. Such a dramatic attitude, long continued, must make his neck ache, if long use does not inure him to it. It was a standing wonder to me that the Japanese genus *Equus* had not long since developed into the *Cameleopardus girafa*. Japanese horses have been thus tied for centuries, but no instance of such transformation has taken place, nor is the giraffe found in Japan. According to Japanese hippology big teeth denote poor, small teeth good, eye sight. Rice straw as a steady diet will produce spavin; mulberry leaves cure blindness; certain spots on the knees betoken a good "night eye," or power to see well in the dark. Horses are not curried, but are combed, washed in warm water, and carefully wiped. It is the custom to bind the forelock so as to stand erect in tufts like pompons. The art of equine coiffure is professed by specialists. To make the tail droop gracefully, the sinew beneath the root is cut. As there are few flies in Japan (think of it, O ye American housekeepers!) a fly-brush is not necessary. The same diet on which the "Captain Jinks," of the popular song, feeds his horse, is that of the Japanese nag. He is fed from a box or bucket on corn and beans, as a rule. Hay, straw, grass, and mixed fodder, composes his summer diet. In the center of the floor, beneath the body of the animal, is a clay-lined pit, covered with a wooden grating. Not an ounce of any description of manure is lost in Japan. In the Fukul stables the stalls were very clean. The horses were black, white, or brown. Their names were a study, such as "Black Dragon," "Typhoon," "Willow Swamp," "Green Mountain," "Devil-Head," "Thunder-Cloud," "Arrow," "Junk-Stone," "Devil's Eye," "Earthquake," "Iron-Jaws,"

Varnish.

BY JAS. P. DUFFY.

Varnish is a solution of chemical substances, containing resinous matters as their bases. These substances are always dissolved in some liquid, which, while capable of evaporation on exposure to air, is of a sufficient consistency to enable the solution to be spread with ease on any plain surface.

The liquids which are capable of being thus utilized, are alcohol, naphtha, and oil of turpentine. Of these, the latter, being the cheapest, and for some articles the best, is most frequently used.

Shellac, mastic, sandarach, and copal, are all used for varnishes, one of these being dissolved in one or the other of the above-mentioned liquids.

The various kinds of work for which varnish is used, require their various elements, preparation and skill in manufacture, the latter being an important item.

All the substances used are very combustible, and as heat is a requisite which cannot be dispensed with in the manufacture of varnish, great care is always necessary in order to prevent fire.

For the use of furniture makers, varnish is made by dissolving a quantity of *kauri*, (a soft copal gum procured from New Zealand) in linseed oil and oil of turpentine. To this is generally added an oxide, for the purpose of facilitating the rapid drying of the varnish on exposure to air.

The solution thus formed is boiled in large kettles until the fusion of the gum and spirits takes place. While still warm, the varnish is put up in cans, sealed air-tight and kept in a warm place. The air-tight closing of the cans is done to prevent dust and air from coming in contact with the varnish before being used. The ob-

ject of keeping it in a warm place is to improve it both in form and reality.

For making carriage varnish, Zanzibar gum copal is used instead of *kauri*, although, in some cases, gum procured from Benguela and Angola, Africa, is used. The former, however, makes the more perfect work, and when procurable is generally preferred.

Of the utility of varnishing little need be said. That it acts as a preservative of wood-work seems to be recognized as much as the fact that it adds to the beautiful appearance of the work. Within the past thirty years its manufacture has increased considerably, and at present it bids fair to become as important an article of commerce as it is a useful one.

Indian Runners.

A correspondent in the Sioux country writes: "This system of Indian runners seems to be little understood. If important news is to be carried, an Indian gorges himself with meat, takes a short nap, mounts one of the fleetest of their ponies, and rushes along like the wind until his horse requires feed, when he nods a few times while his horse satisfies its hunger from the luxurious meadows, when the ride is renewed. The runner needs nothing for his pony, and takes nothing for himself but his arrow and blankets, and will, in the manner indicated, ride two or three days and nights, passing over from sixty to one hundred miles in each twenty-four hours. When the nearest camp is reached, his story is taken up by other Indians, and in like manner carried in every direction. The speed with which the news travels depends upon its importance, but in this way the Indians often beat the telegraph, and their first reports, if they come direct, are usually to be relied upon. The runner who brings great news is feasted from one tepee to another, and it is not until the story begins to grow old that he lets loose his imagination and adds to the original in order to keep up the interest in him as the bearer of great news. There are always volunteers, and frequently two or three will start for the same point, but the one that gets in last is bound to tell the biggest story, if he has to deny the statements of his rivals or cut his story out of whole cloth in order to do so. Hence the conflicting reports.

No Success without Industry.

I really believe, young friends, that idleness is the ground of most vices. I am acquainted with certain young men who are running about the streets, whom I see stepping out of drinking saloons. Some of them are sons of reputable parents. I remember last summer meeting a young man—one of the best-dressed lads in the city—a young man whom I met in the omnibus frequently, riding up and down; and I had seen him so often, and always with such a leisurely air, that I said one day, calling him by name, "What are you doing?"

"I have not got any particular business," he said.

"Well, haven't you anything to do?"

"Nothing in particular," he answered.

It was somewhat impertinent, but I said,—

"Well, I suppose now you are out of school, you mean to get into something pretty soon?"

"Well, I have not anything just now in view," he replied.

To make a long story short, the poor fellow has not anything in view, never did have much of anything in view. Drifting, drifting, drifting! Down, down, down! He is not the boy he was when I conversed with him last summer. There is nothing truer, though trite, than the adage, "An idle brain is the devil's workshop." Unless there is an aim, a plan, a purpose in a man, there is depravity, and appetite, and lust, and passion. It is idleness that fills our jails and prisons. It is idleness that rolls up millions and millions of dollars for spirituous liquors every year.

Industry, my young friends, is the first law of success. Some one asked a man who was counted a great genius, to define genius, and he said, "Genius is industry." Things never come about of themselves. The man who writes a great book never wrote it in a day or a week. The man who has reported a great invention did not combine wheel and piston in an hour or a month; but it was the industry of inquiry, the industry of application. Industry is the first law of success.

Glycerine.

BY JAS. P. DUFFY.

Glycerine, when pure, is a sweet, sirupy liquid, which mixes with water and with alcohol, and possesses all the powers of a great dissolvent.

In the raw state (if a liquid can be so termed) it exists in fat, the latter being always a combination of glycerines. Its name is derived from a Greek word, meaning sweet-tasted, and when pure it is always colorless. If it be heated in an open place it becomes volatile; and if it be distilled, which process decomposes it, vapors similar to those produced from the smoldering wick of a tallow candle, will be given off. Being used for a large number of purposes independent of its use as a solvent, it is largely manufactured. The processes used are different, but the following experiment will convey an idea of the source from which it is produced.

Having placed fifteen and a half grains litharge, and three ounces of water in a deep porcelain dish, thoroughly mixed the same, and add fifteen and a half grains of olive oil; boil the whole for one hour, taking care to keep up a constant stirring, and to occasionally add water to replace that lost by boiling. This process gradually decomposes the oil and forms lead plaster, the color gradually changing. When the mass is colorless, the liquid portion must be filtered. Dilute the remaining thick portion with three ounces of water, boil a few minutes, and then filter it also. The water dissolves the glycerine and thus enables it to be filtered. This water must then be evaporated by placing the liquid on a glass shaped like a watch crystal, under which hot water is kept at a gentle heat. When nearly all the water is evaporated (which may be known by the gradual thickening of the liquid), slightly increase the heat until the mixture ceases to steam. The operation will then be complete, and the glycerine will remain in the condition above described, viz.: as a colorless liquid having a sweet taste, and being incapable of volatilization. The uses of glycerine are very numerous. In the laboratory, it is used as a solvent; in the doctor's office, for chapped hands and lips, and for the purpose of sweetening medical preparations; the barber dilutes it with water and applies it to the hair, thus rendering the latter more subject to the comb; and finally, but not least, it is used in making nitro-glycerine. For the latter purpose, 100 parts nitric acid and 200 parts of sulphuric acid are mixed. 30 parts of glycerine are then added very slowly and stirred for ten seconds with a brass rod. The whole is poured into a vessel of 6000 parts water, when the nitro-glycerine sinks to the bottom to the extent of double the quantity of glycerine employed.

Anecdote of Talleyrand's Wife.

Talleyrand's wife was more remarkable for her beauty than her intelligence, though it is probable that some of the stories told of her excessive *naïveté* may have been invented for her benefit, and others may have been given to her which originated in other quarters. There are skeptics, for example—and M. Amedee Pichot is one of them—who doubt whether the Robinson Crusoe story, which is the best one told of her, ought to be given to Madame De Talleyrand. As a stray reader here and there may not know this anecdote, it would be a pity to omit it; it is this: Talleyrand was going to entertain at dinner M. Denon, a *savant*, who had been to Egypt with the army of the First Consul. Talleyrand on the day of the dinner, informed his wife that she would have at her right at table a learned man and a traveler, and that she would do well before he arrived to glance at his volume, which she would find on his library table. Madame de Talleyrand at dinner, by way of compliment to the author, spoke of the immense pleasure which she had found in the narrative of his adventures.

"But you must have found it very tiresome being alone on a desert island," she said.

"Madame, I do not understand," said M. Denon.

"O, but you must," she said; "and you must have been very happy when your man Friday arrived."

Madame de Talleyrand had by mistake been reading the "Adventures of Robinson Crusoe." M. de Talleyrand, it is said, remarked on one occasion when she had committed some such mistake: "A witty wife can compromise her husband, but a foolish wife can only compromise herself."

Clothing the Body.

One important object to be secured by clothing is uniformity of temperature. The average temperature of persons in health is 99 degrees F., and this is maintained by the condition of the blood, unless some counteracting influence prevents. This uniformity of temperature is of the utmost consequence. Clothing may disturb this uniformity in various ways. Compression obstructs the flow of blood, which results in an immediate lowering of the temperature. In this way the feet and hands are made cold by tight boots and gloves. Too many thicknesses of clothing at particular points result in the accumulation of heat, and consequent congestion. A lack of clothing results in the escape of heat, and the forcing inwardly the surface blood, tending to produce congestion of the internal organs. Thus one part may be over-heated by a superabundance of clothing, while another part is suffering from cold. How often do we see children loaded with clothing about the chest and neck, while the legs and lower part of the trunk are barely covered. In some parts of the body the blood vessels are larger and more numerous than in other parts; for instance, the throat, the lungs, the liver, the kidneys. Hence, these organs are liable to become over-heated by clothing, and especially if other parts of the body are imperfectly protected. The region of the kidneys is often over-dressed by the lapping, at this point, of the garments which clothe the trunk and lower extremities. Two or three extra thicknesses are thus obtained, and the tendency is to accumulate an excess of blood in these delicate organs.

It is believed that the muffling of the throat is the cause of more sore throats, coughs and croups than all other causes combined, especially when supplemented by thinly clad extremities. As I have said elsewhere, flannel should be constantly worn next the skin. This prevents sudden chilling of the surface, which is very important in our variable climate. In cases where flannel irritates the skin, cotton flannel or silk may be substituted. Linen should never be used.

The Value of Pluck.

It is this pluck, this bull-dog tenacity of purpose and stubbornness of perseverance, that wins the battles of life, whether fought in the field, in the mart, or in the forum. "It is the half-a-neck nearer that shows the blood and wins the race; the one march more that wins the campaign; five minutes more of unyielding courage that wins the fight." History abounds with instances of doubtful battles or unexpected reverses transformed by one man's stubbornness into eleven-hour triumphs. It is opinion, as De Maistre truly says that wins battles, and it is opinion that loses them. The battle of Marengo went against the French during the first half of the day, and they were expecting an order to retreat, when Dessaix consulted by Napoleon, looked at his watch, and said, "The battle is completely lost, but it is only two o'clock, and we shall have time to gain another." He then made his famous cavalry charge, and won the field. Blucher, the famous Prussian general, was by no means a lucky leader. He was beaten in nine battles out of ten; but in a marvellously brief time he had rallied his routed army, and was as formidable as ever. He had his disappointments, but turned them, as the oyster does the sand which annoys it into a pearl.

Washington lost more battles than he won, but he organized victory out of defeat, and triumphed in the end. It was because they appreciated this quality of pluck, that, when the battle of Cannæ was lost, and Hannibal was measuring by bushels the rings of Roman knights who had perished in the strife, the Senate of Rome voted thanks to the defeated general, Consul Terrentius Varro, for not having despaired of the republic. In the vocabulary of such men there is no such word as "fail." Impossibilities, so called, they laugh to scorn. "Impossible!" exclaimed Mirabeau on a certain occasion, "talk not to me of that blockhead of a work!" "Impossible!" echoed the elder Pitt, afterwards Lord Chatham, in reply to a colleague in office who told him that a certain thing could not be done: "I trample upon impossibilities!" Before such men mountains dwindle into mole-hills, and obstacles that seem unconquerable are not only triumphed over, but converted into helps and instruments of success, by their overwhelming will.

A Fight Between a Horse and a Tiger.

BY LADY VERNEY.

A curious proof of the courage and strength of the horse is found in a book by a Mr. Knighton, an Englishman, who was in the service of the King of Oude. He tells the following story of what he himself once witnessed at Lucknow.

The king, whom he calls "a sensual, cruel savage," kept many wild beasts, which he sometimes set to fight with each other as in the Roman games.

One day, Mr. Knighton was driving from the River Goomtee to one of the palaces in a sort of little open gig. As they passed along the streets, there was not a creature to be seen; if any one came in sight, they were rushing hurriedly off. Presently he saw in the middle of the road a trampled bloody heap. He stopped; it was the corpse of a woman terribly lacerated and torn, the face crushed by teeth into a shapeless mass, the long matted hair clotted with blood.

Such was the capricious tyranny of the king, that Mr. Knighton was hardly surprised. "It was probably some execution," he whispered to his companion.

On they drove—there was still no signs of any inhabitants to be seen; the houses were everywhere closed, a sort of breathless terror seemed to reign in the city. Presently they came to the body of a lad similarly mangled, lying by the side of the road, and they stopped once more. On the top of an adjoining house they saw one of the king's troopers looking intently up the street.

"What is the matter?" said Mr. Knighton.

"The man-eater is loose, wallah! Look-out, Sahibs, he is quite wild to-day."

I had heard (continues Mr. Knighton) of a savage horse belonging to one of the troopers, who was called Kunewallah, because he had destroyed many men.

"He is coming, he is coming!" shouted the man suddenly from the housetop, "take care, take care!"

Far down the road we could see the wild brute, a large bay horse, savagely shaking a child which he had seized in his jaws, and evidently coming our way.

In another moment, he had seen the carriage, thrown the child on the road, dead, no doubt, and rushed forward furiously to attack us. We turned, our horse almost unmanageable with terror, and drove on at a mad gallop towards a sort of a yard which was closed in by strong gates. We could hear the iron-hoofs of the man-eater clattering over the road in the silent street, as he pursued us at breakneck speed.

We gained the enclosure, and drove within the doors, which were luckily open. I jumped out and threw back the gate, which fortunately shut with a heavy iron bolt into a socket. As it fell in, the man-eater came thundering up, his head and cheeks covered with blood, his jaws steaming with the recent slaughter of his victims. He stood looking savagely through the rails, with cocked ears, distended nostrils, and glaring eyeballs, a ferocious-looking monster. Our horse trembled from head to foot as if he were shivering with cold; the man-eater glared at us through the bars, walked round to try and find an opening, but it was all hard iron railing. Satisfied that he was baffled, he turned round, rattled his iron heels against the bars, and with head and tail erect and cocked ears galloped off down the road. Later in the day we heard that the trooper had contrived to let fall a noose over his head, he had been upset, muzzled, and taken back to his stable.

I mentioned what I had seen to the king when I came to him shortly after. "He is as savage a wild beast as a tiger," said I.

The king laughed. "Then he shall fight the tiger Burrhea," so called after the name of a village at the foot of the Himalaya, from which the animal had been brought.

There was a courtyard in the palace about sixty yards square, surrounded by thick bamboo railings on two sides. On the third was a gallery, in which the king sat surrounded by male and female slaves fanning him with peacock fans. The man-eater was lured on into the yard after a little mare of whom he was fond; and the tiger, who was without food or drink, was let loose into the enclosure.

The horse stood in an easy attitude, with one foot advanced, awaiting the attack, moving as Burrhea moved, with his eyes fixed on the eyes of his enemy. Suddenly,

with a light bound, Burrhea was upon the mare, with one blow of his paw he threw her over, his teeth fastened in her neck, he drank her blood, enjoying his draught, but his eyes fixed meantime all the while on the man-eater, who, his neck protruded, cocked ears, glaring eyeballs, and twitching tail, watched his enemy intently in an easy attitude of attention.

At length the tiger began to move stealthily round the courtyard, like a cat, noiselessly, the soft balls of the large paws put slowly down, the long lithe back working as he went.

In the middle stood the horse, slowly turning as the tiger turned, the head, ears, and neck bent forward, while on stole the tiger; not a sound was heard, every one was in mute expectation; at last the tiger bounded like lightning, intending to seize his enemy by the head, but the horse dived aside a little and received his antagonist on the haunches; the claws sank deep in the flesh, while the hind feet of the tiger made a grasp at the fore legs of the horse. Suddenly the man-eater lashed out with his iron heels, and in a moment Burrhea was sprawling on his back; he was up again, however, immediately, and stealing round once more, as if nothing were the matter. Noiselessly round and round he went, his broad head always turned to his wary foe, while the horse, though his haunches were bleeding and lacerated, with an indignant snort resumed his former position, his head and neck still lowered and protruding, one foot still out to admit of that rapid drive and thrust by which he turned his enemy's flank. This monotonous circling went on for eight or ten minutes, or even more, the man-eater ever facing him, and snorting angrily from time to time. Once the tiger paused by the dead mare as if to eat it, then suddenly, without the smallest growl or preparation, he sprang again, as if lifted by galvanism in the course of his monotonous gyration. Kunewallah was, however, not taken by surprise; his head ducked again, and again he received the tiger on his haunches. We could see the broad round head for an instant near the tail of the horse, while his hind claws reached to the breast; his body was quivering uneasily, with the belly nearly on the horse's back; it was only, however, for an instant. Again the ferocious beast lashed out with his hind legs, almost as if he would throw himself on his side, and his iron heels came against the tiger's jaws, and he fell sprawling on his back. He soon rose again, but now only to try to escape; his jaw was broken, and with his tail between his legs he cried loudly with pain, like a whipped spaniel. The man-eater watched him narrowly, thinking it might be only a ruse. Now the king ordered the door of the cage to be opened, and Burrhea rushed into his shelter, evidently having had quite enough.

Proudly then the man-eater snorted and pawed; he scampered up to the mare, spurned her with his foot, then, with his head aloft and tail arched, he trotted round, trying to get at the attendant servants; his blood was up, and, tiger or man, it was evident that he did not mind any of them.

"Let another be set at him," cried the king. "I will have my revenge for Burrhea."

The keeper of the tigers was summoned, and came in salaaming in fear. "May it please your majesty's greatness, the tigers were fed two hours ago."

"And why were they fed two hours ago, you scoundrel?" shouted the king.

"May it please the royal greatness of your majesty, it was the usual time," said the poor man, salaaming again, and trembling in every limb.

"You shall go to the man-eater yourself, if the tiger won't attack him," cried the king, furiously.

The court was oppressively hot; the king sat, fanned by the great peacock's tails, and surrounded by his female slaves watching. The second tiger's cage was brought up; he came leisurely out, and only when poked by spears, and then quietly surveyed his antagonist. He was larger than Burrhea, but not so high-bred, or so beautifully streaked, neither was he so light and graceful in his motions. He squatted himself down on the dead mare, and tore it leisurely in pieces with a strength of claw and limb and jaw, very unpleasant, one would think to watch, for the man-eater, who remained on the defensive upon the other side of the court.

"Remove the carcass, you fools!" shouted the king, angry at the delay.

This could only be done by driving away the tiger

with red-hot bars. A noose was then flung over the dead mare, which was at length drawn out. The tiger, much annoyed, stretched himself at full length, and lay growling in the middle of the court, where he could not be reached. At last they contrived to strike him with a spear of immense length, and began to shake the bamboo rails; but nothing would induce him to assail the horse, who went on as before, facing the tiger as he turned. He showed his glittering teeth at the men, but refused to move in the direction of Kune-wallah.

We began to fear for the poor keeper of the wild beasts, but the king had now forgotten his threat, and shouted that the man-eater was a brave fellow, and he would see what he could do with three buffaloes. There is no animal so fierce when thoroughly roused; he will put a good-sized elephant to flight, goring him terribly with those tremendous weapons, his horns.

When the beasts came in, the man-eater seemed much disconcerted at the sight of the uncouth monsters, and he retreated snorting almost with fear; but as they remained in the corner where they came in, huddled together and never dreaming of an attack, he took courage, pawed the ground, sniffed at them with distended nostrils, and came slowly nearer and nearer, step by step.

Still they paid no heed to him, but crowded stupidly on each other. At last the horse's head almost touched the side of one of the buffaloes, he sniffed and smelled at the hide, and, at last, seeing that the unwieldy brute took no notice whatever of him, he wheeled round, and lashed up furiously against the ribs of the meditating buffalo, who seemed stunned by so sudden and unlooked-for an attack, and then they all three shook their heads, but prudently abstained from any reply.

The king laughed outrageously. "The man-eater deserves his life," said he; "let him escape."

The beast was then adroitly muzzled, and led forth to his stables a victor.

"By my father's head, he is a brave fellow! he shall have a cage to live in, and be taken care of for his life."

He had an iron cage made for him, twice as big as many London drawing-rooms, where he snapped his teeth and lashed out with his legs at admiring visitors; "and when I left Lucknow," says Mr. Knighton, "the man-eater was still one of its sights."

The Country Store.

Just the place among the hills for the old-time country store that, like Noah's Ark, contains a little of all sorts. You look for it at some lazy four-corners, within hearing of an anvil's ring, and the grind of a mill where the creek plays in the wheel like a caged squirrel. And you find it, the variety store of a hundred years ago, where needles and crowbars, goose-yokes and finger rings, liquorice-stick and leather, are to be had for cash or "dicker." In the corner yonder stands the spindle-legged desk, behind a breastwork of barrels, and a bastion of codfish criss-crossed, a big blotter spread open upon the lid, goose-quill pens, a sand-box and a pewter ink-stand within reach.

Here is the wooden bench beside the stove, covered with jack-knife sculpture, awkward H's like a pair of leaning bar-posts with one bar, and B's like ox-yokes. It is here that in rainy days and winter nights the whittlers, smokers, spiters and talkers gather in, and lay their blue and white mittens beneath the stove to dry; perhaps a village doctor with his saddle bags and pink and senna-nimbus; perhaps a country lawyer who practises at the country bar in court time, and the tavern bar the year around, with his dogmatic way and his tobacco atmosphere. Here Unions are saved, States constructed, stories told, and pig-tail gnawed. Here "fore-handed" farmers talk pig and potatoes, and buxom country girls smell of peppermint, and warm their rosy fingers that match their ripe cheeks for color. Here clouds of smoke from clay pipes float up among the bed cords, and brooms, and tin lanterns, and cow hide boots suspended overhead. And the stove, with its red mouth close to the hearth, roars and reddens in the howling nights, and the black nail-heads in the floor are worn silver bright by stamping and uneasy feet. A boy, tipped with red as to fingers, nose, ears and toes, stands before a short row of pickled glass jars, in brimless hats of covers, wherein lean a few streaked sticks of childish happiness at a penny apiece, and gazes with watering mouth that keeps him swallowing in blissful expectancy.

The Genius of Work.

Alexander Hamilton once said to a friend, "Men give me credit for genius. All the genius I have lies just in this. When I have a subject in hand I study it profoundly; day and night it is before me; I explore it in all its bearings; my mind becomes pervaded with it. What men call genius is only the fruit of labor and thought."

It is the capacity to labor after all that will give you success in life rather than particularly bright parts to start with. This ability to work is a quality capable of indefinite improvement. The more we work the more we can work. Whatever your calling, you will never meet with much success unless you give your best thoughts to it. Turn over the matter in your mind wherever you are, and decide on the best steps and processes of labor, and then deliberately and calmly take up the work in detail. Rushing and blustering over anything is a sign of weakness rather than power. There is little dispatch in such labor. True genius is always composed, and apparently at leisure. The busiest men in the nation are those who have time to attend to every new project that comes up which rightly demands their attention.

Have you really learned to work, boys? To think with all your might over your business, and then put forth your best strokes? If not, do not flatter yourself that your "genius" will help you to make your way in the world. It is not of the right cut. It has not the ring of the true metal. The flattery of foolish friends has been the ruin of many a bright boy, who if he had been taught to do faithful, steady work with brain or hand, might have written his name high in the world's records.

True Economy of Life.

The true economy of human life looks at ends rather than incidents, and adjusts expenditures to a moral scale of values. De Quincey pictures a woman sailing over the water, awakening out of sleep to find her necklace untied and one end hanging over the stream, while pearl after pearl drops from the string beyond her reach; while she clutches at one just falling, another drops beyond recovery. Our days drop one after another by our carelessness, like pearls from a string, as we sail the sea of life. Prudence requires a wise husbanding of time to see that none of these golden coins are spent for nothing. The waste of time is a more serious loss than the extravagances against which there is such loud acclaim.

There are thousands who do nothing but lounge and carouse from morning till midnight—drones in the human hive, who consume and waste the honey that honest workers wear themselves out in making, and insult the day by their dissipation and debauch. There are ten thousand idle, frivolous creatures, who do nothing but waste and wear what honest hands accumulate, and entice others to live as worthless lives as they do. Were every man and woman honest toilers, all would have an abundance of everything, and half of every day for recreation and culture. The expenditure of a few dollars in matters of taste is a small matter in comparison with the wasting of months and years by thousands who have every advantage society can offer, and exact every privilege it affords as a right.

A Beautiful Idea.

It cannot be that this earth is man's only abiding place; it cannot be that our life is a bubble, cast up by the ocean of eternity to float for a moment on its waves, then sink into nothingness. Else why is it that the glorious aspirations which leap like angels from the temple of our hearts are forever wandering about unsatisfied? Why is it that the rainbow and the cloud come over us with a beauty that is not of earth, and then pass off and leave us to muse upon their faded loveliness? Why is it that the stars which hold their festivals around the midnight throne are set so far above the grasp of our limited faculties, forever mocking us with their unapproachable glory? And finally, why is it that the bright forms of human beauty are presented to our view but for a moment and then taken from us, leaving the thousand streams of our affections to flow back in Alpine torrents upon our hearts? We are born for a higher destiny than that of death; there is a realm where the rainbow never fades—where the stars will be spread out before us like the islets that slumber on the ocean, and where the beautiful beings that here pass before us like shadows, will stay in our presence forever.

A REVERIE BY THE "SEA-SIDE SANDS."

BY JENNETTE GIBSON.

"Nor far nor near grew shrub nor tree,
The bare hills stood up bleak behind,
And in between the marsh weeds gray,
Some tawny colored sea-weed lay,
Opening a pathway to the sea,
The which I took to please my mind."

surface of the globe, there were no air-breathing animals, and fishes where the lords of creation; it has, therefore been very properly called the "reign of fishes." All animals whose remains have been preserved were, without exception, aquatic, breathing by gills; the climate must have been uniform; the dry land had not appeared above the waters, and all creation was silent as in mid-ocean.



"OPENING A PATHWAY TO THE SEA,
THE WHICH I TOOK TO PLEASE MY MIND."

Down on the shining, yellow sands, I heard the breaking waves and watched the foaming surf. It was comparatively calm, but, O Sea, I thought, 'tis well 'twas said: "Hitherto thou shalt come, but no further; and here shall thy proud waves be stayed!" Other ways our globe, as it once was, would be only one awful tumbling, salt, green sea!

During the period when the sea covered the whole

"While yet the waters covered the face of the earth and the heavy vapors concealed the sun, God spoke, and the clouds parted; the god of day with unveiled face, lighted the world; the great mountains lifted their heads toward heaven; and the waters ran to their places. The mighty ocean to its own bounds. The brooks and ponds found green pastures to flow through, and sweet meadows to nestle in;" and

"Lo, the great sun, and Nature everywhere
Is all alive, and sweet as she can be;
A thousand happy sounds are in the air,
A thousand by the rivers and the sea."

Old ocean arouses sometimes, and in dreadful fury besieges its lost possessions; as if desperately determined to dash through continents, that it may grandly flow once more unimpeded around, and over this great rolling sphere; 'twould sweep him who has dared in floating ships to brave its watery wastes, in angry majesty from the earth he inhabits.

How it lashes, beats and breaks in pieces his handiwork, and far down in coral caves, or amid the waving sea-weed hides his bones; or as if loath to give them rest, even in its spacious bosom, drags them hither and thither.

Ah, well did I remember when years ago a gallant bark came dashing in among the black heads just disappearing beneath the flood-tide; and the spectre death stood grim and pale on the jagged rocks, swinging his merciless scythe to and fro, amidst the thunder of breaking waves, until every doomed soul from the stranded wreck was dragged away by the cruel sea, to

"Sink into the depths with bubbling groan,
Without a knell, unnamed, uncoffined and unknown,"

while deep triumphant voices shouted a requiem over them.

'Tis a great wide sea of physical beauty and power, filled with God's riches—beautiful things both animate and inanimate abound within this boundless realm. It first nurtures great monsters, and then with pitiless fury dashes them dead upon its shores, as it did the great cuttle fish recently on the shores of Newfoundland. Its resources are never exhausted, its fountains never dried up; its ebbing and flooding tidal waters wash every shore.

What a wonderful, incomprehensible portion of the earth's surface the ocean is; how humble should feel the human mind in contemplating its grandeur! Sitting on the sands I feel what I am—an atom amid the universe, and involuntarily my mind rises with yearning awe toward Him "who sitteth upon the throne," controlling these mighty waters: providing sustenance and a hiding place within their depths for all the marine creatures he has made. While caring so lovingly for these, He also clothes the land with lavish hand and cares for the wants of every living thing thereon; even to the little nodding flower struggling to live in the barren crevice of a rock; He waters it from the gates of heaven; warms it with his great sun and smiles upon it, because it tries to grow, thrive and blossom, as he would have it, in gentle beauty, notwithstanding its uncongenial surroundings. Thus we know His love is infinite, encompassing all his works. The restless, seeking, unsatisfied human soul, so like the ever-tossing sea, becomes calm, when within the only haven of rest, amid the mystery of nature, it finds and clings to a never failing and never drifting anchor, "the love of God."

His love is manifest in every particle of the universe. "How do you suppose all the rills and rivers, lakes and ponds, came to find these delightful homes? God sent many angels to guide them! One angel showed the proud river his path; it did not need to be cleared for him, for his strength was great, and his feet rushed onward with ceaseless haste towards the sea. All were not so brave as the fearless river, and the angels who led the brooks went before, making the way easy for the tender feet and soft hands; pushing aside a rock here, and sharp briars there, on which the white arms and lovely hair would be bruised and torn. Then the little streams gave their thanks by skipping over the pebbles with a joyous babbling, and in cool shady places, murmuring a gentle song of content, so pleasant to hear that the angels felt repaid for all trouble and danger.

But the angels who made the basins for the ponds and lakes, then with helpful, watchful hands, brought the waters down from the heights, where the north wind had tossed and perplexed them, and the huge, hard rocks had frowned upon them—what was their reward? Ah, was it not enough to see the bright

faces turned to the sky, reflecting every motion of Nature; each cloud that lazily floated through the azure, each star that 'blossomed in the infinite meadows of heaven?'

Sometimes the way would lead round a beautiful knoll, covered with fragrant pines, and lo, an island! Then how the lake would guard the beautiful spot! Gently would the water creep up to it, laying the feet of the stately trees, throwing back to them the image of their own dark beauty, sliding back in haste only to come again; crooning a soft accompaniment to the soothing song, heard way up in the topmast branches of the tall pines."

Only think of the broad rivers, beautiful streams, and even the bubbling brooks that have for their final destination the fathomless sea; and these, with all the different bays, gulfs, seas and oceans, all combine to form one great system of water, which covers three quarters of our entire globe, and is kept of nearly uniform composition, chiefly by means of great currents which circulate through them. Some of the currents are of vast extent, spreading over a large portion of the oceans to which they belong, and without variation they move incessantly in the great system of the circulation of waters.

Some are submarine, moving in one direction, while the waters at the surface move in another. They are set in motion by differences of temperature, by planetary attraction, rotation of the earth, the trade winds, etc.

Prominent among the important objects they serve, beside that already named of equalizing the sea water itself, is the effect they have upon the climates of the globe; the waters warmed by the tropical heats carrying and diffusing their elevated temperature into colder regions, and those form the arctic seas, spreading with the icebergs which they float along, a portion of the excessive cold of those inhospitable climates over the temperate latitudes.

The ocean is the chief source of the vapors that are wafted over the earth and fall in rain, feeding the rivers, which in turn yield back to the ocean their waters.

The saltiness of the ocean is owing to the presence of chloride of sodium (common salt), which, with small quantities of sulphate of magnesia, sulphate and carbonate of lime, iodine, and bromide of magnesium, form about one-thirty-sixth of the aqueous solution.

From the strata beneath the sea there no doubt emanate mineral springs, such as appear upon the land, and some of them even furnish supplies to vessels.

The color of the sea is by no means uniform, and the reason of the changes of its hue is unexplained. In the tropics it is at one time an indigo-blue, then a deep green, and again a slate gray. The clouds appear to have no influence in producing these changes. Upon some coasts a reddish or purplish hue is apparent, and elsewhere the water appears black, or white, or beautifully transparent.

In the fords on the coast of Norway the crystal clearness of the water is wonderful; at the depth of twenty or twenty-five fathoms small objects may be discerned upon the sandy bottom, apparently magnified by the water itself.

The Red Sea is often referred to in the Old Testament, under its Hebrew name of *Yam Suof*, the sea of weeds. It is believed that the abundance of red coral found in this sea suggested the name; and Dr. Buist and others assert that it comes from the multitudes of animalcule that in the Spring cover large portions of its surface in patches sometimes several miles square.

The most interesting historical incident connected with the Red Sea is the passage of the Israelites across its bed in their escape from Egypt, as recorded in the Old Testament; and much controversy has grown out of the question as to the point where this passage was made, some contending that it was eighteen miles south of Suez, where the sea is twelve miles wide, and others that it was in the immediate vicinity of this town, where the sea is now fordable at low tide, and its breadth is only about 3,500 feet.

Here, the waters being kept down by the strong east or north-east wind, as described by Moses, the passage of the immense hosts may have been completed on the ebb-tide, and the returning flood, which still comes in with considerable rapidity, must have overwhelmed the armies that pursued them.

One of the peculiarities of the Mediterranean is the frequent occurrence of remarkable electrical phenomena, known as St. Elmo's fire, being balls of fire playing in mid air around the masts of ships, and called by the ancients Castor and Pollux.

The shores of this sea (which is the largest in the world) have for thousands of years been the principal seats of civilization.

The sea bearing the beautiful name of Galilee, is situated in Palestine, ninety miles north of the Dead Sea, and traversed by the River Jordan. It lies amid a circle of hills 620 feet above the level of the Mediterranean; occupies the bottom of a great basin of volcanic origin, and of an oval form, and is about thirteen miles long and six wide. Much of the public life of Christ was spent on its shores. Populous cities and

villages then flourished around it, as Magdala, Capernaum, Chorazin, the two Bethsaldas, Gamala and Hippos; and multitudes followed him as he taught along its beach or on the bordering heights. After his crucifixion it was here that he appeared to his disciples when discouraged by a long night of unsuccessful throwing and drawing of nets.

"There were seven fishers, with nets in their hands,
And they walked and talked by the sea-side sands;
Yet sweet as the sweet dew-fall
The words they spake, though they spake so low,
Across the long, dim centuries flow,
And we know them, one and all
Ay! I know them and love them all.

"Seven sad men in the days of old,
And one was gentle, and one was bold,
And they walked with downward eyes;
The bold was Peter, the gentle was John,
And they all were sad, for the Lord was gone,
And they knew not if he would rise—
Knew not if the dead would rise.

"The live long night, till the moon went out
In the drowning waters they beat about;
Beat slow through the fog their way;
And the sails drooped down with wringing wet,
And no man drew but an empty net,
And now 'twas the break of the day—
The great, glad break of the day.

"Cast in your nets on the other side!"
('Twas Jesus speaking across the tide);
And they cast and were dragging hard;
But that disciple whom Jesus loved
Cried straightway out for his heart was moved:
"It is our risen Lord—
Our Master and our Lord!"

"Then Simon, girding his fisher's coat,
Went over the nets and out of the boat—
Ay! first of them all was he;
Repenting sore the denial past,
He feared no longer his heart to cast,
Like an anchor into the sea—
Down deep in the hungry sea.

"And the others, through the mists so dim,
In a little ship came after him,
Dragging their nets through the tide;
And when they had gotten close to the land,
They saw a fire of coals on the sand;
And, with arms of love so wide,
Jesus, the crucified!

"'Tis long, and long, and long ago,
Since the rosy lights began to flow
O'er the hills of Galilee;
And with eager eyes and lifted hands,
The seven fishers saw on the sands,
The fire of coals by the sea—
On the wet, wild lands by the sea.

"'Tis long ago, yet faith in our souls
Is kindled just by that fire of coals,
That streamed o'er the mists of the sea;
Where Peter, girding his fisher's coat,
Went over the nets and out of the boat,
To answer, 'Lov'st thou me?'
Thrice over, 'Lov'st thou me?'"

The borders of the sea of Galilee are now desolate, and the fisheries neglected; but the glory of its associations will never desert its shores.

We have said but little of the inmates of the deep, which represent innumerable variety, displaying as much, and perhaps more variety and elegance of form and beauty of coloration than the birds. There is not a color of the rainbow, nor a hue of a precious stone, which may not be seen in the bands, spots, and scales of fishes.

Their beauty, therefore, as well as their utility as food, early drew attention to these inhabitants of the waters. Many tribes of men, both savage and civilized, obtain their principal nourishment from the sea. The countless numbers of cod, mackerel, herring, and other migrating fishes, give employment to thousands of men, and prove important items of national wealth. On the one hand, the poorest person may satisfy his hunger in the cheapest manner with fish, and on the other, the wealthy epicure may tempt his palate by the most expensive luxuries from the sea. The aristocratic salmon and turbot swim side by side with the plebeian tribes.

The ocean, then, has great interest for us. Not only national and historical, but ten thousand personal interests gather for us over its waters. We think of the myriads of our fishing-boats which brave every day the "subtle, fitful, implacable smiting of the black waves"; of the light-houses standing like angels on the perilous rocks, till

"Each with a beacon star upon his head,
And with a wild sea light about his feet,"

headland after headland flames its warning along our miles on miles of coast.

"We think of peaceful merchant vessels disseminating, as widely as its waters, the riches of every land; of those near and dear to us who are now furrowing its waves; of the treasures of gold and silver, and precious stones, embedded forever in its depths; of those far richer treasures, the loved ones, who lie buried there; of little sailor-lads whom on wild nights of ruin its waves have swept pitilessly from the shattered wreck; of brave hearts, each in his hammock-shroud, dropped into that wandering grave; and, doubtless, when, oh, to us

"The fools of habit, sweeter seems
To lie beneath the churchyard sod;"

yet all such sorrows and doubts are quenched, when we comfort ourselves with the promise that "The sea shall give up the dead that are in it." And since the sea in its rolling infinitude, in its enormous might, in its perilous highway for the nations, is, as it has been ever felt to be, a fit emblem of time and life, I think that we may, for a few moments, meditate with profit on the thought of "Life as a voyage;" and I trust that when we have done so, we shall be induced, with deep humility, to lift up, each in our hearts, the touching prayer of the Breton mariner: "Save us, O God, Thine ocean is so large, and our little boat so small!"

Many of us may have been driven far astray by storm and tempest, by the winds of passion, by the currents of temptation, yet there is One voice still that can rebuke the wind and the sea, and One who can still lay His sovereign hand on the misdirected helm.

"And, O blithe breeze, and O great seas,
Though n'er the present parting o'er,
On your wide plain we meet again,
Oh, lead us to yon heavenly shore.

"One port, methinks, alike we seek,
One purpose hold where'er we fare;
O bounding breeze, O rushing seas,
At last, at last unite us there!"

The Important Functions of the Skin.

Looking at the complicated mechanism of our bodies from a popular standpoint, we should say, perhaps, that the brain is the most important part of us; but that would be a mistake; not only the brain, but the stomach and kidneys are less necessary to life than our skin. Reflect upon this matter for a moment; you can go without food for several days and not suffer serious injury; your liver may cease to act for a week, and you can attend to your business as usual; the brain may be paralyzed for months, and life goes on; but if the functions of the skin are suspended for two hours, death follows. Take a dog or cat, and dip the animal into melted paraffine or tallow, so that the skin excretion or secretions are suspended, and the animal will die almost as quickly as if ten grains of strychnine had been administered. The skin is a most important auxiliary to the lungs in the process of aeration of the blood, and so intimate the connection, or so similar and important are its functions, that when death ensues from skin obstructions, all the conditions resemble those occasioned by cutting off air from the lungs. More deaths from consumption are caused primarily by skin obstructions than from any original weakness or disease in the lungs. The lungs are the first of the important organs to be influenced by derangements of the skin, and they often become congested or disorganized through secondary causes.

'A Little Treasure.'

A crowd of people were standing around the Corliss engine in Machinery Hall, at the Centennial, watching and admiring it, when a man stepped from among them and took from his pocket a tin-box, and opening it took out what appeared to be an exceedingly diminutive alcohol lamp, and placing it on the corner of the platform lighted it. Then it began to buzz something as a humming-bird might, if only small enough, and upon close examination it was found to be a perfect steam-engine in full motion, having for its foundation a twenty-shilling gold piece. It was composed of gold, steel, and platinum, the fly-wheel being three-fourths of an inch in diameter and the stroke one-twenty-fourth of an inch, and its full weight seven grains. A magnifying glass had to be used to see it distinctly.

ALL are familiar with Newton, whose little dog Diamond upset a lamp and burned up the labor of years of patient study. His only reproach was, "Ah, Diamond, Diamond, you know not what a mischief you have done your master."



GOLDEN SUNSHINE.

BY JULIA GODDARD.

Glinting through the bending rushes, quivering came the golden light
 Over the flower-bespangled meadows, broided in with colors
 All about the silver daisies, all among the corn-flowers blue,
 All among the scarlet poppies till they blazed to flaming hue;
 Then it glittered on the river where the yellow lilies reined;
 Marked the shining slippery pebbles with a thousand golden
 stains
 Gilded earth with glorious beauty through its wonder-painting
 rays,
 And afar in purple distance shimmered in a golden haze:
 Bright it fell on wild-tossed tresses, soft crept into childish
 eyes
 On the beauteous world a-gazing with a look of glad surprise.
 Children in the meadows playing, weaving garlands fresh and
 fair,
 With the golden sunshine round them, ah! what should they
 know of care?
 All around them life and beauty, earth below and skies above,
 And their simple hearts still raving in a realm of joy and love.
 Little reck they of a future, little ponder of a past;
 Life is all a present glory that for ever and ever lasts.
 Every bird a story telling as it sings upon the boughs
 Of the sweet delights of summer in the never-ending Now;
 Every bee a secret humming of the honey stored away
 In the depths of summer blossoms, for the feasting of To-day;
 Butterflies a wild chase leading through the tangled briar and
 brake.
 Flutter on their fairy visions for the happy Present's sake.
 Royal Childhood! in its kingdom all the wealth of earth is
 grasped;
 Simple souls with sceptered fingers o'er earth's treasures tightly
 clasped;
 Every flower for them is springing, every bird for them doth
 sing;
 Even the rainbow for their pleasure o'er the earth a bridge doth
 fling.
 Kings and queens, they reign supremely in a myriad-monarched
 land,
 Never fearing that their claims will meet with doubt or rebel
 hand.
 With firm trust and faith they wander, all the world their own
 believe;
 Who shall of the sweet delusion care their hearts to undecieve?
 Yet, perchance, what boasts can treasure that is theirs by
 transient lease?
 He owns most who can most largely garner of earth's beauty
 bright.
 Not the owner of the acres, but the soul that rapturous turns
 Thawing God for all the glory that it cannot shut its doors
 From the better than this to the better world above;
 Holding thorough ungodly tenure, freedom gift from God's
 own Hand.
 Not the holder of the earth, nor the wearer of the crown,
 Is the owner of the kingdom on which His sun shineth down.

He who walks the earth, and gathers golden sunshine to his
 breast,
 Through the gifts that God has given holds the royal heirship
 best,
 Ah! the golden, golden sunshine of the golden summer days,
 Let it tune all hearts and voices to more perfect note of praise.

Potting Plants.

A plant should not be potted when it is very dry, nor
 when soaked with wet. In the former case, it is very
 likely to remain dry, as the water will pass through the
 fresh soil without penetrating into the old ball of earth.
 When the roots are thickly interwoven, they should be
 carefully disengaged, that they may be spread out into
 the fresh soil; but in shifting young, healthy growing
 plants, the roots which may be reaching the side of the
 pot, should not be disturbed, as it is important to pre-
 serve the smaller fibres, upon whose action the health of
 the plant chiefly depends.

The Throne of the Grand Mogul.

Constantine entered Rome in a chariot of gold adorned with
 precious stones, which sent forth rays of light, and in his
 time the royal crown was first set about with precious stones.
 But how insignificant is all this seeming magnificence when
 compared with the barbaric splendor of Hyder Ali, Tippe
 Saib, Tamerlane, Nadir Shah, Aurungebe, and the last ruler of
 the Mohammedan dynasty, which for seven hundred years
 held the reins of power in India, the wonderful Shah Jehan.
 Truly the descriptions of the power and glory of this Great
 Mogul seem like the romance of "Arabian Nights," and when
 compared to the even wonderful tale of Lalla Rookh, whose
 "Valley of Cashmere" was the scene of all his splendor,
 proves that "fact is stranger than fiction."

An imperial hall which was only an accessory to the great
 palace at Delhi, was constructed of white marble worked into
 the most delicate forms, its whole white surface, pillars, walls,
 arches, roof, and even pavements were inlaid with the richest
 and most exquisite designs in arabesque, the fruits and flowers
 being represented by gems so delicately cut that they looked
 like "embroidery on white satin," so exquisitely was the
 mosaic executed in precious stones—thirty-five specimens of
 carnelian being employed in a single leaf of carnation, and
 some flowers contained no less than three hundred different
 stones. The walls and columns were inlaid with inscriptions
 from the Koran. The whole had the appearance of a rich work
 of the loom. In the centre of this hall stood the wonderful
 peacock throne, the *chef d'œuvre*, representing one hundred
 and fifty millions of dollars.

This wondrous work of art was ascended by steps of silver,
 at the summit of which rose a massive seat of pure gold, with
 a canopy of the same metal inlaid with jewels. The principal
 feature of the design was a peacock with his tail spread, the
 natural colors being represented by pure gems. A vine was
 introduced into the design, the leaves of which were of precious
 stones, whose rays were reflected from mirrors set in pearls.
 Here, in all his glory, sat the Grand Mogul, the crown on his
 head in proportionate magnificence, and composed of diamonds
 and gems arranged with exquisite art, and estimated at a cost
 of eleven millions of dollars! And one thing more, the
 Koh-i-noor on his brow, and you have the Grand Mogul in all
 his glory, as he sat on his peacock throne, surrounded by
 Mohammedan princes, by turbaned and jeweled rajahs, amid
 splendor which only the gorgeous East could produce.

A Wonder.

Considering that we are daily surrounded by dangers of
 every conceivable sort, it is a miracle that we walk in our
 particular paths so far, before we fall on death. We are hedged
 about, we think, by accident and circumstance; now we creep,
 and now we run, and in all things are thwarted or assisted.
 Our particular lives, seem as piers of solid rock, thrown for-
 ward into the tide of circumstance. What risks we run!
 famine, and fire, and pestilence, and the thousand forms of a
 cruel fate, and yet every man lives, till he—dies. We wonder
 superfluously, when we hear of a somnambulist walking a
 plank securely. We have walked a plank all our lives, up to
 the string-piece where we now are. Gulfs are bridged in a
 twinkling, as if some baggage train carried pontoons for our
 convenience, and from the heights we scan the tempting but
 unexplored ocean of future.

Sunday in Saxony.

BY A. F. PIGOTT.

I rarely admire German Sundays, because I have a great dislike to the vociferous character of the Teutons, which is brought into special prominence on the day which with us is a day of quietness and repose. Yet in Germany the Sunday service is not without interest. It is over by midday, and the transition is rapid from worship to pleasure, from solemnity to lightheartedness; still there is no reason to doubt the existence of strong religious feelings. The Germans are naturally a devout people, and in Saxony, perhaps, more than in any other part of Protestant Germany, the spirit of devotion is deep and earnest. Here the impress of Luther's spirit still remains, and the influence of the famous pietists of Halle—Spencer, Arndt and Francke.

I arrived late one Saturday evening at a Saxon village, and found my way to the only hotel in the place. It was called the "Ritter Von Hutten," and the landlord saluted me with the usual German friendliness which is always manifested to guests, especially if they come from England. I ordered some refreshment as the first part of the business. This was soon provided, and while I regaled myself the landlord and landlady kept me company, talking their best.

"You live a quiet life here," I said.

"Yes," answered the landlady, "ours is a quiet village, and the fear of God is in this place."

It was unusual to hear such words in an inn, and I naturally wished to know something more about the village.

"Have you ever heard of Ritter von Hutten?" asked the landlord.

"Ritter von Hutten!" I repeated, "do you mean Ulrich Von Hutten?"

"The same family," said the landlord, "but not the same knight. Ulrich was famous as the protector of the Reformers; but I speak of a later Hutten, who lived two hundred years ago. This village was his property, and he had a devout wife who has left many traces and memorials of her piety. In her day, Philip Spener often came from Halle to preach in our old church. Two hundred years are gone since that time, but the tradition of his preaching remains, and the influence of the devout people of that age is not yet effaced. Goodness lives long," the landlord continued. "Men think but little of the influence they exert either for good or evil by their words or their deeds."

This discourse surprised me, but I was pleased to hear it. Suddenly there was a sound of music outside.

"The evening carols," said the landlady, and rising up, she went to the door. The window was opened, and a company of sweet singers chanted a hymn, of which the burden was, that God's presence makes all troubles light, and turns even sorrow into joy, for they who have a good hope for the future live in that hope, and joyfully overcome the sorrows of life.

The song ended, the window was again closed, and conversation resumed. "The singers," said the landlady, "come every Saturday evening. It is an old custom since the days of Spener and Knight Hutten. When the singers have sung their carol, the people begin to think of the services of the next day, and calm their minds for devotion."

Sunday dawned. I was down stairs by half-past eight, intending to be ready for the church service by eleven o'clock. But, lo, at this early hour the people were hastening to the church from all parts of the village. I joined the company, and was soon seated in the sacred building. At least fifteen hundred persons were present. I wish I could give any idea of the singing. This always strikes me as the great power in German churches. The words of the hymns have a fire in them which is found in but few English hymns. They speak much of Christ and of the redemption on the cross, and they suppose in the persons who sing them an inward consciousness or experience of the reality of what is sung.

The pastor was a venerable old man, with a large forehead and a stately presence. His face was wrinkled, but his clear, bright eye spoke of high intelligence, while a placid smile occasionally relieved what seemed a stiffness of expression, brought on evidently by deep thought. Awe and reverence were impressed on his countenance. He opened the Bible—Luther's renowned version, the

greatest gift that Luther bestowed on his countrymen—and he read as his text: "Now we see through a glass darkly, but then face to face." "All life," he said, "was God's life, and in time eternity was begun. The difference between this life and the next was, that now we see the face of God faintly, then we shall see it in fulness of vision. Now there are but glimmerings of light to guide us onward, but then the brightness of His glory shall overshadow us. We shall enter into it and realize the unity of our being with Him in whom we live and move. We see through a glass darkly; we feel after God if haply we may find Him. Some do find Him and he shews them His covenant, and that vision of God is their everlasting comfort. They know Him now, but their knowledge is only partial, because there is a veil of flesh between them and pure spirit; but then they shall know even as they are known."

The old man became eloquent when he drew near the close of his sermon. He had spoken of the sinner as alienated from God by the darkness that is in him. He had spoken of the joy which the believer has on earth in the contemplation of the divine glory, and he went on to speak of the rapture of seeing God in Christ, and being with him for ever. On the thought of God in Christ he spoke for some time, intimating that though we should have visions of Christ as He is, yet our highest satisfaction would be with Christ, in whom are all the perfections of Deity under the form of humanity. In St. John's vision it is the Lamb who is to be the guide of the saints, and the Light of the glorious Temple, which had no need of the light of the sun. It is recorded of Plato, that when he beheld the beauty of creation, the heavenly lights, the flowers of the field, he concluded by the light of reason that God must be an everlasting and glorious Being, the ideal in which all beauty was centered. We know from God's word that when he shall appear we shall be like Him; when we are fully renewed after His image we shall truly grow into His likeness, and His glory and beauty shall be reflected in us.

The sermon was followed by another hymn, which spoke of the newness of life which the Christian enjoys, and which is to him the beginning of that joy which is to be complete when he beholds the face of God. The great congregation united to sing it with one heart, and the sound of so many voices was like the rolling of the sea when it makes music in the storm. But peace rested on every countenance, and when they left the church it was a repetition of the happy sight described by Coleridge, where go together—

"Old men and wives, and loving friends,
And youths and maidens gay."

I returned to the Ritter von Hutten. It was now towards noon, and I was greatly elevated by the service which I had attended. The landlord and landlady had both been in church, and looked as happy as if they had been on a visit to the new Jerusalem. There was joy in the evening, approaching to hilarity, and much as it was opposed to the state of mind to which I had been accustomed on the day of worship, I tried to explain to myself that perhaps its reason and justification are to be found in the character of the people, who have, evidently, more lively temperaments than are commonly found in England.

Next day I had an interesting conversation with the pastor, to whom I mentioned a remark which we often hear in England, that the religious life of Germany is to be found among the Catholics, and that it has departed from the Protestant communities. The old man admitted that there had been much rash and even irrational speculation among the German Protestants; yet, he added, concerning the Evangelical Church, that many of its members were devoted saints, and that he was satisfied "The Lord was in the midst of her, and therefore she should not be moved."

Wild Bill.

BY B. C. MORSE.

In the year 1809, while some persons were hunting in the Mississippi Swamp, they came upon the prints of the bare foot of a young person. They followed them and soon discovered a naked boy walking on the shore of one of the lakes that abound in that region. His object was to catch frogs, which he immediately devoured raw. As soon as he saw his discoverers he plunged into the

Jake, and diving and swimming with the ease of an amphibious animal, escaped them.

This occurrence naturally excited so much interest among the settlers, that they collected in a body to endeavor to capture him. After hunting for him for some days, they at length discovered him under a persimmon tree eating the fruit. He fled as before, but the hunters put dogs on his track, which soon tired him out. When brought to bay, he turned and fought with a remarkable degree of courage and ferocity. But, compelled to yield to numbers, he was at last caught and bound.

He was then not far from nine years of age, naked and perfectly speechless. His form was slender and well-proportioned, and capable of extreme agility. In two years after his capture he was able to converse quite readily. It was more difficult to overcome his appetite for raw flesh than to teach him to speak. In fact, this appetite was never fully overcome. He developed a strong liking for alcoholic liquors, and became intoxicated whenever there was an opportunity. In some respects he became tame, but in the fierceness of his temper he was always a wild animal. When playing with other children, the moment his passions were aroused, his first impulse was to strike them with whatever instrument was nearest at hand.

They attempted to put him to work, but he showed a savage disrelish for labor. He was sure to run away; generally going to the livery stable, where his chief delight was to mount the horses whenever he could get a chance. Riding was his passion, and he would mount every horse in the stable merely for the pleasure of riding it to water.

He became quarrelsome, addicted to drunkenness, and a notorious liar. In fact, so great was his propensity for lying, that his statement of his earliest recollections has not been considered of sufficient importance to be preserved.

Swedes Going Home.

Twenty-seven Swedes, on their way to cross the water to go back home, attracted considerable attention at the Allentown, Pa., depot recently. One of their number, Antone Heine, was their representative man. He was a tall, well-built person, standing six feet four inches high. He could speak tolerable English, as he had been in America four years, employed on public works. He said:

"We are going home because work is too scarce to stay in America. Over two hundred are going this month; last month many more left. Most of us have been here three years. We have saved enough money in that time to make us feel easy in our old homes. We would have stayed, but times are too bad for us. All the railroad work in Jersey is finished, and we left the work on the South Mountain road because we don't like to wait so long for wages and run the chances of not getting it. The South Mountain line is to run from the coal regions to New York and Boston. They are working on sections between Allentown and Harrisburg."

He was asked something about railroad labor in America as far as he knew.

"Well, you see my four years' experience in America has taught me much. In the old country I was fifteen years on public works. Here in this land you are all fast and in a hurry. Five years ago the Irishmen did most of the work. Now the Swedes, Italians and Poles do it, or have been doing it the past five years. Contractors say they like Swedes for three reasons: First, they don't get drunk; second, they are saving; third, they work hard and good. After pay day a Swede or a Pole won't spend half his money for rum, get drunk, and stay away three or four days to sober up. Instead of that, the Poles, Swedes and Italians do a far different thing. On a large public work they are divided into gangs, say twenty of 'em will be in a shanty. There they live, just like a mess in the army or on board ship. They do their own buying and cooking, sleep together, and make their own beds and do their own washing. Instead of it costing 'em twenty dollars a month to board in a shanty the same as other men, they get through with about a dollar and a half a week, or six dollars a month. They keep about half a dollar back for tobacco, and then they hold a meeting. All the money that they can spare they turn into the treasurer, who sends it to their agent in New York, and he sends it to Sweden. No drinking

whiskey, you see, nor staying away from work. In this way the Swede, Pole and Italian save nearly every cent they earn that they do not spend for their living. Clothing does not bother them; they did not come to America to put on airs. They were on business. They worked hard and got as high as \$1.75 per day. Men generally average twenty-two working days, not counting Sundays and rainy days. They average about forty dollars a month, of which they save about thirty in good times, but many of 'em only work about half the year. In four years in this country they can save enough to keep them comfortable in the old country for many years. Times are getting hard, and we are told that they ain't going to get any better, and that's why we are going home. There's nothing in public works in the East here any more, except a railroad near Syracuse. All the work going on is out West, but it is not enough to keep us going. All of us that ain't going back home are going out West."

The man was asked how Swedes live on a dollar and a half a week.

"Well, you see, Irishmen want beef and potatoes, bread and butter, every day. We are satisfied with bread and coffee in the morning, and soup at dinner. We make a boiler full of soup out of vegetables, enough to feed twenty men, at a cost of about one dollar, and what is left we eat for supper. We eat very little meat, no butter, some molasses, rice and beans, and eggs for Sunday. It costs each man about twenty cents a day. In the old country the way we live it hardly costs one cent a day."

The man then told one of his party to open his pack. Each one of them carried a knapsack made of bagging. "There, you can see a Swede's baggage, woollen shirt, blue pants, extra pair of boots, tin cup, tin plate, knife, fork, spoon, thread, needles, and a comb in his pocket. The Italians don't carry everything they have in a pack. They carry something down the backs of their necks, a dagger. And they use it freely in a fight. They put up their arm, and in a moment whirl it out, and use it before the stranger knows what he is about. If a Swede dies in this country we bury him, and his money in the old country goes to his people. Most of us have wives and children at home. Those that are going to stay here have their wives in this country."

"Why don't you go West and commence farming?" was asked. "Don't want to farm. Can do that at home. Rather be at home. Takes too much money in this country. Goes too fast. Kill people here. People steal and rob and murder. We get bad here, too, if we stay."

Further information was gained to the effect that the Swedish, Polish and Italian laborers are not arriving in this country to any extent worth speaking of.

Potato Culture

We are accustomed to read with surprise how the poor of France fought against the introduction of the potato into that kingdom as an article of food for the laboring classes. Fields of it were destroyed by the mob, and a prejudice was raised against it as bitter as it seems to us unreasonable.

The miserable character of the kind raised may have been the cause of this hatred. They were not "Early Rose" or "Peach Blows" by any means. One writer speaks of them as "despised by the rich and only used by the meaner sorts of people." Their taste, he says, "was much like the artichoke, though not nearly so good or wholesome." They were roasted and sliced, and eaten with a sauce of wine and sugar. I don't know who could like them under such circumstances.

Since the day when Louis XV. wore a sprig of the beautiful blue potato blossom as an ornament for his court dress, it has steadily grown in favor and flavor in all parts of the world.

There is scarcely another article of food that can thrive so well in all latitudes, from the North of Europe to Bengal; and since it has been so extensively cultivated there has been far less of gaunt-visaged famine in many of these over-crowded countries.

After the potato-bug "cycle" is over with us, we may hope to take a fresh start again in the culture of this most excellent article of food. Such things seem to have their day as much as the locust, and farmers must do the best they can and bide their time in patience.

The Region of Pure Spirits.

Many persons have the impression that previous to the advent of missionaries among the North-American Indians, they had no idea of the existence of a future state of reward or punishment, according to behavior on earth. This supposition is erroneous; there was not a tribe but had a clear idea of a life beyond the grave.

The Indians of the Five Nations believed that there was a place called in their language "Eskanane," which means "The Region of Pure Spirits," where the inhabitants were always happy and never had a wish that was not gratified. They believed that there were only three classes of people who were unable to enter this place, viz., suicides, cowards, and those who disobeyed their chiefs. According to the tradition there is a gloomy, fathomless gulf surrounding the delightful Eskanane, over which the good and brave spirits pass under the care of a skilful guide. When a cowardly spirit arrives at the gulf the guide refuses his assistance. He attempts to cross on a pole, but is precipitated into the gulf below.

In this gulf resides a number of large dogs, or, as some say, dragons, all infected with the itch, which makes them restless and spiteful. They communicate the loathsome disease to the guilty inhabitants of this miserable region, and they suffer perpetual torments from it. They roam from side to side of the narrow gulf, sometimes approaching so near the happy Eskanane that they can hear the songs sung by the brave spirits who have crossed the gulf in safety. They can even recognize the voices of their friends, which only increases their sufferings, for they can discover no means by which they can communicate with them. Some say that according to tradition no light ever enters their dismal abode; others that the unfortunate inhabitants are deprived of their sight when they fall from the pole.

The entrance into Eskanane corresponds so nearly with the Mohammedan idea of the entrance into heaven that, at first thought, one might be justified in ascribing them to the same, or, at least, a similar origin. The Mohammedans believe that in order to reach heaven the spirit must cross a wide, deep abyss on a bridge no wider than a single hair. Below this bridge are dark, tempestuous clouds rolling and tumbling like ocean waves in a heavy sea. From under these clouds come the noise of the poor sinners who have fallen from the bridge, and who now suffer the agonies of hell. Yet, notwithstanding all this, the good spirits cross the slender, swaying bridge with the speed of a race horse.

Life; an Allegory.

BY PROF. WOODWORTH

When we first set out on our journey through life, we have the choice of two roads before us; the one leading down hill, the other ascending. The first, by its alluring prospect, has many volunteers thronging the way, because it is easier to go down hill than up. The principal towns and cities on this journey, where these travellers pass through, are Indolence, Folly, Intemperance, and Prodigality; when they have passed these first stages they lead directly to Contempt, Poverty, Wretchedness, and lastly to Repentance. Some travellers, instead of arriving at Repentance and returning then to Amendment, (which is out of the road by which they came,) are so intoxicated that they leave those places on the right, and rush headlong into deep despair; and so straight on to inevitable ruin.

There are two companions oftentimes to be met with in every stage of this journey, called Prudence and Recollection, who, if the traveller would be wise enough to listen to their admonitions, would bring him by a very short road (which none are able to recover without them) to the city of Repentance, and so on to Amendment; and keep him company till they have conducted him in safety back to the place from which he set out, and prevail on him to try the other road, which I am now going to treat of. The number of travellers frequenting this road is not so numerous; being more difficult to go up hill than down. To accomplish this the exertion of every nerve is required to arrive at the different stages, which are Sobriety, Temperance, Industry and Frugality; and these lead to several others progressively, each of which appears more commodious and

inviting the farther one advances; finding better accommodation at every stage; till, at length, the traveller reaches the summit of this mountainous road, where he meets with a fine plain, abounding with delights of various kinds, and in which are situated the cities of Riches and Honor. If he be a worthy man, he will let the industrious poor partake of his blessings, that he may have one of the most desirable mansions in each of these little cities, named Respect and Content. Though there are comparatively few to be found traveling this road, all do not attain the end of this journey, as it must be performed during the season called Human Life. And as no adventurers that I have ever heard of had two of these seasons allowed them to perform it in, many find themselves obliged to take up their respective abode in different places, being disabled to reach any higher by reason of the load which they have taken upon them, and various other causes too tedious to mention.

Here it may be remarked, that the discouraged traveller seldom meets with a real friend to assist him in this road. In case any inquiries are made after such a character, they are told there is none in company who have had the honor of his acquaintance; but they will tell you that they heard their grandfather mention he had often seen him, but soon after left this country, and gave out before his departure that, disgusted to find his highest favor rewarded with the blackest ingratitude, he was determined to leave; and since his retreat, a being known by the name of Self-Interest has been substituted in his place, who bears the likeness of Friendship, and has deceived many honest, well-meaning persons, but as he never sticks to the unfortunate, everybody knows him to be an impostor.

It is further to be remarked that we often see too many going too near the side, thinking to find a shorter way up the hill, but they generally slide down lower than they were when they first started, and often involve others in their disaster; for, finding themselves going, they catch at anything, and by this totally overset many a fellow-traveller, who have found, to their great mortification, they could not get up again. Several of those who at first looked down with triumph at those who are sweating and toiling below, many times are outstripped, and the hindmost of all comfort themselves with the hopes that they shall reach the top, which sometimes is the case; for when any one finds he can make greater haste than his neighbor, he pushes ahead and passes the next, etc. And, letting go the simile, to speak plainly, nothing puts an end to this ambition but death. You see two roads are set before you. I hope you will make a wise choice.

Tiswein.

BY B. C. MORSE.

It is generally supposed, and until quite recently I shared in the common belief, that the invention of alcoholic liquor was wholly due to the genius of civilization. But, a few weeks since, while conversing with a Western gentleman on this subject, I was surprised to hear him say that the Indians, and especially the Apaches, formerly manufactured large quantities of a liquor, which they call "Tiswein," and of which a small quantity is sufficient to produce intoxication.

This liquor is generally made from corn, and the process is quite simple. The corn is first soaked for twenty-four hours, after which it is placed in a shallow pit and covered with blankets or skins. The blankets are removed several times a day and warm water thrown upon the corn, after which they are carefully replaced. During the night the family sleep upon them in order to hasten the germination.

In about five days it is ready for the next operation. It is taken out, dried and pulverized. Enough sugar to sweeten it is added, and it is boiled four or five hours. After this operation has been performed, it is left a few days to settle and ferment. A thick scum rises to the top. This is taken off, and when the liquor is again clear, it is ready for use. This liquor, they think, is superior to the adulterated stuff which they obtain of the dealers, but they seldom make it on account of the labor, although fifty years ago, before rum could be procured so cheaply, nearly all the grain which they raised was consumed in its manufacture. The sediment at the bottom, after the liquor is all gone, is made into a cake, which is eaten with a hearty relish.

Experiences.

Man's life is experience. We are made up by what we imbibe through the various senses—hearing, seeing, feeling, etc. Without these, man would remain as a child. A man is what he is, according to his advantage. The untutored Indian is a hunter, a warrior, and nothing else. He has no means to become anything more. Nature around him inspires his imagination; and his language, which is limited, (and from the same, necessarily, of a lack of materials,) shows this. A nation with more advantages shows more acquirements; not each member of it, for the advantages pass more or less unheeded by some, and hence there is less improvement. Precisely as we get, and do with what we get, so we are; this in the physical, as well as moral and mental phases of life. The man who complains of his ill success among an enlightened people, is only, unwittingly, finding fault with himself.

It is in us to do; that in nature has furnished the elements, we have but to take advantage of the circumstances. By exercising the faculties they become strengthened. If knowledge, then, is gained, and the matured faculties are applied in the use of this knowledge—which is so much material to be worked with—there will be an effect, and that corresponding with the amount of cultivation and employment—precisely. This is experience, this is life—what we make it. But there must be a relish to inspire, else life becomes a tedious round; little comparatively will be accomplished; there is not the excitement, which is the stimulus requisite to high success, and in such a case the career is pleasurable.

Integrity in Business.

A handsome young lad of our acquaintance had been employed for some time in a drug store, and his pleasing address and smiling face won many friends. He had lately left for another situation, and it was with deep regret that we learned last week he had been arrested as a thief. His trunk was crowded with handsome toilet articles he had purloined from time to time, in such profusion it would seem hardly possible he could ever use a tithe of them—handsome cigar cases, bottles of perfumery, kid gloves, silk handkerchiefs by the score, and all the elegant trifles that came within his reach, that would by any means come useful in a young gentleman's outfit. His old employer was sent for, and identified one hundred and fifty dollars worth of his own property, and others came in for the rest.

Poor, disgraced Alfred. How one's heart aches for the boy, whose fond, widowed mother was counting so happily on his rising to honor and usefulness in the world. Now, all her hopes and his fair prospects are forever blighted. It is a rare thing for a youth of his age to recover his lost standing, when it has been so undermined. And for what a paltry consideration has he brought on this ruin? Only for a few coveted luxuries, as yet beyond his means.

Alfred's first wrong step was mixing with young associates which he knew were not of the right stamp—fast young men who spent their leisure at the bulliard tables. They dressed in a flashy style, and he speedily learned to imitate them. He began his thefts by handing out a cigar from his employers' stock to one crony and another, as they lounged on the counters of the drug-store, when the proprietor was absent. They soon learned where to go for supplies, and the cigars began to disappear very fast. Soon after the young man changed his situation, and not long after, the hour of detection came.

The strictest integrity, in the most trifling matters, is the only sure foundation for a man or boy to stand upon in his business relations. We need more of the spirit of that staunch old government officer, who, when his nephew took a half a sheet of paper from his desk, commanded him sternly, "Put that back, young man. That paper belongs to the Government of the United States."

It is quite safe to say the old man's mantle has not fallen upon all the Government officers of our land. Hugh Miller speaks of the mason of whom he learned his trade, as "a man who put his conscience into every stone he laid." That is what you need in all your dealings with others. Put your conscience in your work, and you can stand up fairly and look every man in the eye. The fortune you build may grow slowly, one stone at a time, but it will be a structure that will stand like the hills.

Personal Appearance.

In personal appearance and habits, much of our success in life depends. There have been many instances where the soul shining through a maimed and deformed body, has conquered the adverse circumstances. This is far easier to do than to overcome an offensive or disagreeable trick of behavior—society will accord its pity and sympathy to natural defects, but for acquired ones it only reserves its disgust.

Every reader will call to mind some person toward whom he or she has felt a repugnance almost unendurable, merely from an offensive habit such an one has formed—sometimes a mere turn of the lip, a cast of the eye, or a peculiar inflection of the voice. Often a practice has been formed of clearing the throat, or spitting profusely about, or picking the ears or some other vulgar habit. These things will create a distaste for such persons in a fastidious mind; and, deny it if we may, or call it "squeamish" or "silly," we are all of us more or less fastidious.

It is the duty of every person to make himself agreeable to others. Most of these peculiarities of manner which create aversion are spontaneous in their origin, but become so habitual that we are unconscious of them. Many of them are formed in childhood—habits not easily removed in after years. While we cannot like everybody, or be loved by everybody in return, still we can take especial care that we do not make ourselves personally offensive by habits and ways that shock the delicate fastidiousness of those around us.

Revisiting the Earth.

To revisit this earth, some ages after their departure from it, is a common wish among men. We frequently hear men say that they would give so many months or years of their lives in exchange for a less number on the globe one or two or three centuries from now. Merely to see the world from some remote sphere, like the distant spectator of a play which passes in dumb show, would not suffice. They would like to be of the world again, and enter into its feelings, passions, hopes; to feel the sweep of its current, and so to comprehend what it has become.

I suppose that we all, who are thoroughly interested in this world, have this desire. There are some select souls, who sit apart in calm endurance, waiting to be translated out of a world they are almost tired of patronizing, to whom the whole thing seems doubtless like a cheap performance. They sit on the fence of criticism, and cannot for the life of them see what the vulgar crowd make such a toil and sweat about. The prizes are the same, dreary, old, fading bay-wreaths. As for the soldiers marching past, their uniforms are torn, their hats are shocking, their shoes are dusty, they do not appear (to a man sitting on the fence) to march with any kind of spirit, their flags are old and tattered, the drums they beat are barbarous; and, besides, it is not probable that they are going anywhere—they will merely come round again, the same people, like the marching chorus in the "Beggars' Opera." Such critics, of course, would not care to see the vulgar show over again; it is enough for them to put on record their protest against it in the weekly *Judgment Day*, which they edit, and, by-and-by, withdraw out of their private boxes, with pity for a world in the creation of which they were not consulted.

The desire to revisit this earth is, I think, based upon a belief, well nigh universal, that the world is to make some progress, and that it will be more interesting in the future than it is now. I believe that the human mind, whenever it is developed enough to comprehend its own action, rests, and has always rested, in this expectation. I do not know any period of time in which the civilized mind has not had expectations of something better for the race in the future. This expectation is sometimes stronger than it is in others; and, again, there are always those who say that the golden age is behind them. It is always behind or before us; the poor present alone has no friends; the present, in the minds of many, is only the car that is carrying us away from an age of virtue and of happiness; or that is, perhaps, bearing us on to a time of ease and comfort and security.

A COURAGEOUS MAN.—Applaud the man who, in these days of display and idle show, desires to live within his means. There is something fresh and invigorating in such an example, and we should uphold and honor such a man with all the energy in our power.

The Value of a Cent.

It is an old saying that, "A pin a day is a groat a year;" by which common expression, some wise man has intended to teach thoughtless people the value of small savings. We shall endeavor to show the value of a somewhat higher article, though a much despised one—we mean a cent.

Cents, like minutes, are often thrown away, because people do not know what to do with them. Those who are not economists of time, (and all the great men on record have been so,) take care of the minutes, for they know that a few minutes well applied, each day, will make hours in the course of a week, and days in the course of a year; and in the course of a long life will make enough of time, if well employed, in which a man, by perseverance, may have accomplished some work useful to his fellow-creatures, and honorable to himself.

Large fortunes, when gained honestly, are rarely acquired in any other way than by small savings at first, and savings can only be made by habits of industry and temperance. A saving man, therefore, while he is adding to his general stock of wealth, is setting an example of those virtues on which the very existence and happiness of society depends. There are saving people who are misers, and have no one good quality for which we can like them. These are not the kind of people of whom we are speaking; but, we may remark, that a miser, though a disagreeable fellow while alive, is a very useful person when dead. He has been compared to a tree which, while it is growing, can be applied to no use, but at last furnishes timber for houses and domestic utensils. But a miser is infinitely more useful than a spendthrift—a mere consumer and waster—who, after he has spent all his own money, tries to spend that of other people.

Suppose a young man just beginning to work for himself, could save but five cents a day—and we believe there are few that cannot do it. Who could not save this amount daily from his expenditures, without lessening his comforts? Yet this, with the accumulating interest, in the course of ten years, will amount to the sum of two hundred and thirty dollars, sixty-four cents; in twenty years, to six hundred and sixty-three dollars, fifty-eight cents; in thirty years, to one thousand three hundred and ninety-six dollars, sixty-seven cents; in forty years, to two thousand eight hundred and fifty-five dollars, forty-two cents; and in fifty years, to five thousand three hundred and fifty-four dollars, thirteen cents.

It will appear, from this mode of calculation, that the amount doubles in about ten years. Let the process be continued two hundred years, and the trifling sum of five cents each day will produce a total of one hundred and fifty millions of dollars; equal, perhaps, to all the banking capital in the United States.

Eating Fruit.

We hardly know how to account for the popular impression that still prevails in many rural districts that the free use of fruit is unfriendly to health. Is has much to do with the scarcity of fruit gardens and orchards in the country. As a matter of fact, cities and villages are better supplied with fruit the year around than the surrounding country. There are hundreds of farmers, even in the oldest part of the land, where there is no orchard, and the only fruit is gathered from a few seedling apple trees grown in the fence corners. The wants of cities are supplied not so much from the proper farming districts as from a few men in their suburbs, who make a business of growing fruit for market. The farmers who raise a good variety of small fruit for the supply of their own families are still the exception. The villager, with his quarter or half-acre lost, will have his patch of strawberries, his row of currants and raspberries, his grape vines and pear trees, and talk intelligently of the varieties of these fruits. His table is well supplied with these luxuries for at least half of the year. But there is a lamentable dearth of good fruit upon the farm from the want of conviction that it pays. It does pay in personal comfort and health, if in nothing else. The medical faculty will bear testimony to the good influence of ripe fruits upon the animal economy. They regulate the system better than anything else, and forestall many of the diseases to which we are liable in the summer and fall. A quaint old gentleman of our acquaintance often remarks that apples are the only pills he takes. He takes these every day in the year when they can be found in the market, and fills up the intervals between the

old and new crops with other fruits. He has hardly seen a sick day in forty years, and pays no doctor's bill. We want more good fruit, especially upon our farms, and the habit of eating fruit at our meals. This is just one of the matters in which farmers' wives can exert an influence. Many a good man would set out fruit trees and bushes if he were only reminded of it at the right time. One right time will be next autumn—at least, in all but the very coldest parts of the country. A few dollars invested then will bring abundant returns in from one to five years. It is more intimately connected with good morals than our philosophers think. With good digestion it is quite easy to fulfill the law of love.

Flocking to the City.

A correspondent of a city paper tells about the great desire on the part of young men to leave the country and flock to the city. The city is full of palaces, he says, but all these do not contain millionaires. Indeed, many a one among them is the witness of penurious struggles which would amaze the farmer, and from which he may be thankful he is spared. Closet skeletons do not all congregate among what are called the poor; they hold high revel in the proud avenues of the fair city as well as in its meaner streets.

The great cities, it must be confessed, offer, as a rule, great advantages; but they demand, too, great capital. A young man going into them first should choose a time when business is alive, not dead; when there is a demand for more, instead of thousands clamoring for the one chance. Then, to succeed, and avoid shipwreck in great financial and commercial centers, he must be possessed of unusual energy and judgment and patience; must have an unswerving sense of probity and an unshrinking devotion to the fulfillment of all contracts and obligations. Those two opposite qualities, boldness and caution—qualities which all men do not possess—are also indispensable, in the long run, to city success. Boldness enough to undertake operations sufficiently vast to meet the large cost of a great business—caution enough to administer this business so as to keep in check the temptations to enter into doubtful transactions, or to contract with those unworthy the fullest confidence and trust.

But if young men leave their country homes without those high aspirations which are to consummate in the great merchant's or the great editor's career, and ask simply to find an obscure place, joggling along evenly with the noisy crowd, I should say: "Better stay at home; there are many rough joists even in what is called joggling along in a big city. There stands more than one scholar here, measuring goods behind the counter of a retail store; and more than one New York car conductor built for himself a higher place in his castle than he has found. Better remain at home and fit yourself into a honorable and useful place there, rather than rush impulsively to the great city, to find numberless others, equally worthy, lamenting their fallen lot, or standing altogether idle."

Worth Knowing.

Keep salt in a dry place.
Keep yeast in wood or glass.
Keep fresh lard in tin vessels.
Keep preserves and jellies in glass.
Keep meal and flour in a cool, dry place.
Keep vinegar in wood, glass, or stoneware.
Sugar is an admirable ingredient in curing meat or fish.
Crusts and pieces of bread should be kept in an earthen jar, closely covered, in a dry, cool place.
Lard for pastry should be used as hard as it can be cut with a knife. It should be cut through the flour, not rubbed.

☞ A person is not worth anything that has not had troubles. You cannot subdue selfishness without a struggle. You cannot restrain pride without a conflict. You cannot expect to go through life without bearing burdens. But you are going to have help under circumstances that will redeem you from these things. You are going to experience more victories than defeats. Your suffering will be only here and there—little spots in a whole field of peace and joy.

☞ There is nothing that lightens one's burden so quickly and so much as to help other people carry theirs.



ADOWN THE YEARS.

BY G. W.

Where leafy trees deep shadows throw,
And shelter from the noon-day sun,
A veteran of the long ago
Sits musing, as the minutes flow,
On battles lost and victories won
Long years ago.

He looks far back adown the years,
In fancy sees the days of yore,
And murmurs from the long-past hears—
The din of strife, the cries, the cheers—
Ah! how old times return once more,
After long years!

But now for him life means but rest;
And though he still looks back on strife
With something of a lingering zest,
Yet like a barque on ocean's breast
Safe anchored, so he feels that life
Indeed is rest.

And as the lengthening shadows fall,
Telling that eventide is nigh—
That mystic time when thoughts enthrall—
He muses on the end of all,
And trustful waits his summoning cry—
The trumpet call.

For each of us the time must be
When *we* look back adown the years,
And all our old time conflicts see,
Past happiness and misery,
The record of our hopes and fears—
Such time must be.

How happy then if, as we look,
A dreamy sense of quiet rest
Steals over us, and as a brook
That babbles on through quiet nook,
Life ripples with unruffled breast
Where'er we look.

And when the shadows gather round
That guard the valley all must tread,
How well if we the gate have found,
And trustful hear the trumpet sound,
And know that though the way we dread,
We're homeward bound.

A Florida orange tree has been known to bear five thousand oranges in one season.

The head of the rattlesnake has been known to inflict a fatal wound after being severed from the body.

Colorado.

Lying along the Great Cordille, or snowy range, which divides the waters of the Atlantic from those of the Pacific Ocean, directly west of Denver City, extending from near the base of Long's Peak, in a southerly direction for over two hundred miles in Colorado, is one of the richest mineral belts in the world.

From five to fifteen miles wide, this vast extent is literally gridironed with gold, silver, copper and lead-bearing lodes. Many of them, of course, are too poor to pay at present for working; but the pyrites from which the gold is extracted is very rich in copper. West of Denver City are the rich mines of silver. Many of the lodes are very wide and can be traced on the surface for long distances. There is a good supply of water, and timber trees are plenty. In addition to all this richness of the western country, there are long stretches of bituminous coal in veins from five to fifteen feet thick, so that it often seems as if the ancient writers foretold concerning our glorious country.— "A land flowing with milk and honey," and every other good thing besides; for here also are "the cattle on a thousand hills," and the "rivers of oil," and is it not the "Land of Promise" to every homeless wanderer in other countries?

"Vegetable Oils."

BY JAS. P. DUFFY.

Vegetable oils are of many varieties, derived from various sources, and are used to a large extent for numerous purposes. Their principal sources are certain fruits and seeds, among which, the most used for this purpose are peach-stone kernels, peanuts and almonds; also, hemp, flax, sun-flower, and cotton seeds. The cereals are also productive of these oils, as may be illustrated by the following experiment:

Construct what is known as a *water-bath*, by the following directions: Obtain an oil-can, and insert through a well-fitting cork the stem of a glass funnel in it. Then half fill the can with water, and place a small earthenware dish in the mouth of the funnel, so that it may contain the substance to be evaporated or dried, which is done by the steam from the water in the oil-can (while the latter is being heated) impinging upon it. This contrivance is greatly used for evaporating or drying chemicals at a moderate temperature, which can be permanently kept below a certain known limit. It is commonly known as the "water-bath."

Having dried three or four teaspoonsful of corn-meal for two hours by means of the above arrangement, place it in a small bottle, and pour upon it six or eight teaspoonsful of ether. Cork the bottle, and for some time, (about a half-hour) shake it. Then, after having extinguished all fires or lights near the mixture, filter it into a clean dish and place it in the open air. In a short time the spontaneous evaporation of the ether will take place, and a yellowish oil, possessing the general properties of vegetable oils will remain.

The various vegetable oils are divided into two classes, known as *fixed* and *volatile* or *essential*; the former being distinguished from the latter by many qualities, the principal of which are that they give a permanent greasy stain on paper, and cannot be distilled unchanged. The essential oils, even at ordinary temperature, evaporate very readily, and this property furnishes a conclusive test in case of their adulteration with inferior oils. An example of this may be seen in the case of otto of roses. This volatile oil is sometimes adulterated with *spermaceti*. If a drop of the suspected article be placed on a sheet of blotting paper, it will, if pure, evaporate by the aid of a gentle heat in a few moments, without leaving any trace of its presence on the paper. If *spermaceti* be present, it will leave an unctuous mark on the paper.

The other different properties, etc., of the fixed oils will form the subject of another article.

In *Ageria*, the people in a certain section have no difficulty in providing themselves with writing fluid. A stream comes down from an iron region, and joins another which flows through a swamp. There is an acid in the swamp-land which, when its waters mix with the iron makes a river of excellent ink. What a land for scribblers that would be!





